Yarmouk University
Faculty of Economics and Administrative Sciences
Department of Accounting



# The Effect of Costing Systems on the Competitive Advantage of Jordanian Industrial Firms: An Empirical Study

# أثر نظم التكاليف على الميزة التنافسية للشركات الصناعية الأردنية: دراسة ميدانية



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By the Name of Allah, The Most Pretty and the Most Merciful

# The Effect of Costing Systems on the Competitive Advantage of Jordanian Industrial Firms: An Empirical Study


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# Dedication

*I would like to express my deepest appreciation to the most important people in my life, my dearest parents:*

***MY FATHER (IBRAHIM), AND MY MOTHER (AMNEH)***

*who gave me encouragement and support during the hard times of my thesis.*

*This modest work is dedicated to the wonderful person who has touched and enriched my life.......*

***TO MY BROTHER NABILE***

*To my loving brothers and sisters:*

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*and to my dear wife*

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# List of Abbreviations Used in the Study

| Term | Description |
|---|---|
| ABC | Activity Based Costing |
| ASE | Amman Stock Exchange |
| CEO | Chief Executives Officer |
| CFO | Chief Financial Officer |
| CMA | Certified management Accountant |
| CPA | Certified Public Accountant |
| Freq. | Frequency |
| JCPA | Jordanian Certified Public Accountant |
| M | Mean |
| SD | Standard Deviation |
| % | Percentage |

## (Abstract)

**Abu-Dawleh, Ahmad Ibrahim. The Effect of Costing Systems on the Competitive Advantage of Jordanian Industrial Firms: An Empirical Study; Master of Science Thesis, Department of Accounting, Yarmouk University, 2007 (Supervisore: Dr. Mahmoud H. Qaqish).**

This study investigates the effect of costing systems on the competitive advantage of Jordanian industrial firm, from the perspective of Chief Executive Officer (CEO's) or Chief Financial Officer (CFO's).
To achieve the objectives of the study a relevant questionnaire is designed and distributed to a sample consisting of 30 companies selected from Jordanian industrial firms listed in Amman Stock Exchange (ASE) in the first market. The study uses the descriptive statistical analysis such as Frequency, Percentage, Mean, Standard Deviation, and one sample t-test to test whether the costing systems affect the competitive advantage of the company or not, and it's effect on the profitability of company. Also it examine whether costing system is able to provide relevant information to internal and external users according to their needs of these information.
The results show a positive relationship between costing system and competitive advantage of the firm. In addition, costing system has an ability to provide relevant and accurate information to internal and external users as needed.



**Keywords:** Costing Systems, Competition, Competitive Advantage, Price, Quality.

# Chapter One

## Introductory Chapter

1.1 Introduction

1.2 Objective of the Study

1.3 Importance of the Study

1.4 Hypotheses

1.5 Study Structure

## 1.1 Introduction:

Recently rising competition in many areas such as price, marketing or distributive, and product competition (Khandwalla, 1972) has been mentioned as the reason that many companies invested in cost accounting system[1] which enables them to survive in competitive environment.

Companies during the last quarter of 20th century perceived the linkage between competition and the need to improve cost accounting systems, the most important reasons to update costing systems are: (1) the need for improved pricing, (2) the need to control overhead costs, and (3) the need to deal with increased competition (Hansen, 1998)[2].

This study investigates the relationship between costing systems and competitive advantage of Jordanian industrial firms. Practitioners literature generally argue that firms benefit more from accurate costing system when the market becomes more competitive (Krishnan, et al. 2002). Theoretical economic analysis, in contrast, predicts that increases in competition result in increases in the optimal level of product-costing accuracy only for some types and levels of competition (Hansen 1998).

This study targeted industrial firms because of its complexities in materials used in production process, complexities in cost allocation



[1] Cost accounting system and costing system will be used interchangeably.
[2] Smith & Sullivan (1990) surveyed 261manufacturing managers about their cost accounting system and found 50% had or were about to update their cost accounting system because of the above mention reasons.

methods that they used in allocating cost to the product that they produce, and the complexities in categorizing cost according to its behavior.

The relationship between costing systems and competitive advantage investigated by using questionnaire distributed to Chief executives officer (hereafter CEO's) as users of costing information derived from costing system in decision making process or to Chief financial officer(hereafter CFO's) as preparers of these information.

Not only the relationship between costing system and competitive advantage of the firms were investigated, but also the effect of costing system on many other related variables such as cost classification, identification of market opportunities and threats, and using costing information as planning and controlling tools were investigated, which in turn affect on the firm's profitability.

## 1.2 Objectives of the Study:

This study aims to achieve the following objectives:

1) Investigating whether the cost accounting system has an effect on the firm's competitive advantage.
2) Identifying whether using accurate and developed costing system will lead to enhance the competitive advantage in terms of pricing, marketing or distributive, and product competition.

3) Determining to what extent costing system contributes in classifying cost according to its behavior accurately.
4) Clarifying whether costing system provides relevant information to external and internal users.
5) Determining to what extant costing system helps CEO's or CFO's in exploiting market opportunities and avoiding market threats.

## 1.3 Importance of the Study:

Cost accounting system plays an essential role in preparing financial statements which reflect the financial position of the company, determining the unit cost of product, pricing decision, and investment decision.

From another point, the competition among companies has been increased, it occurs in the domains of pricing, advertising and promotion, and quality. So there was a need to relevant information by accurate costing system to determine the cost of products precisely in order to be able to compete in the market.

In Jordanian environment the competition between companies have been increased, so Jordanian government on 27 April 2004 has developed particular rule regulates all activities such as production, trade, and services. Whether these activities happened outside or inside of Jordanian environment and has an effect on it.

In this rule the government identifies many issues regarding the competition in Jordanian market such as the criteria which must be used in pricing of goods and services, unethical behavior between competitors, unethical practices hindering trading activities, and who is responsible in applying this rule[3].

So many companies in Jordan start thinking in refining their costing systems to cope with the increased competition. The importance of this study comes from considering it as a first step in clarifying the relationship between cost accounting system and competition.

Also the other main importance of this study comes from identifying the other factors such as cost classifications, identification of opportunities and threats, satisfaction of external and internal users needs, and using costing systems as planning and controlling tools which may be affected by costing system's accuracy, and in turn, affect on competitive advantage of companies.

## 1.4 Hypotheses

There are many objectives are investigated in this study as mentioned on section 1.2. To reach to these objectives, we will test the following hypotheses:

**$H_1$:** There is a positive relationship between costing system and firm competitive advantage.

[3] www.mit. gov. jo

**H2:** Using modern and sophisticated costing system will enhance competitive advantage of the company in terms of price, marketing or distributive, and product competition.

**H3:** Using modern and sophisticated costing system will enhance the profitability of the company.

**H4:** Using modern costing system enable the company to classify its costs accurately

**H5:** The use of financial information derived from costing system helps in identifying market opportunities and threats.

**H6:** Accurate and modern costing system enables the company to provide financial information which satisfies the user's needs.

**H7:** Accurate costing system enables the company to prepare budgets and evaluate actual performance.

**H8:** The choice of costing system is based on the application of Cost – Benefits analysis.

## 1.5 Study Structure

The remainder of this thesis is organized as follows:

Chapter Two introduces a review of the related literature. Chapter Three presents theoretical background about cost accounting, costing systems, and competition. Chapter Four is devoted to the data and methodology used in this study. Empirical Results and the analysis are introduced in Chapter Five. Finally, Chapter six provides conclusions and recommendations.

# Chapter Two

## Literature Review



2.1 Introduction

2.2 Previous Studies

2.3 Comments on Previous Studies

2.4 Distinguishing the Study from the Previous Studies

## 2.1 Introduction

This chapter is devoted to literature review focusing on the attempts that tackle the subject of the study, which are displayed and ordered chronologically. A brief comment is provided on these previous studies. Finally, what distinguishes this study from the previous studies in terms of scope and methodology is introduced at the end of the chapter.

## 2.2 Previous Studies

### *2.2.1 Pizzini (2006):*

Pizzini investigated the association between Cost–System design, manager's beliefs about the relevance & usefulness of cost data, and actual financial performance.

He argued that the accounting literature identifies at least four critical attributes of Cost – System design: First, the level of details provided, second, the ability to disaggregate costs according to behavior, third, frequency with which information is reported, and fourth, the extent to which variances are calculated.

Depending on the contingency theory that contends that a firm's strategy, organizational structure, and environment dictate its choice of control system, Pizzini groups the determinants of hospitals Cost – System design into three categories: strategic, structural, and environmental, and consider them as control variables.

Strategy can be measured along two dimensions:- product differentiation and low – cost production, structural determinants include case mix which measures the severity of cases treated, teaching affiliation, size of hospital, and whether a hospital is a member of multi-hospital system, finally a firm's external environment also has been found to influence Cost – System design in the hospital and other industries that operate in market with strong competition.

The survey of Pizzini's study was sent to financial mangers at 1703 US hospitals, 385 responded and 277 hospitals had been taken as sample of the study. Also Pizzini was using a descriptive statistic in analyzing data.

Results of the study indicated that managers believe that systems which supply greater cost details, on average & relative to hospitals in similar organizational contexts, provide more relevance and useful data, also the better classification of costs is associated with higher managerial evaluation of data relevance and use.

Furthermore the results showed that the hospitals have not yet adjusted their cost systems to accommodate the increases information needs created by sweeping environmental changes.

### *2.2.2 Cardinaels and Roodhooft (2004):*

As a starting point of their study, Cardinaels and Roodhooft looked at ABC- adoption in other industries, they tested whether few existing factors, such as the support of the medical parties towards cost system used and the

way hospitals and physicians arrange reimbursements, known to be associated with the adoption of more accurate costing systems in these industries are applicable for the health care sector. Secondly, the study takes the specific behavioral and organizational factors of the sector into account.

The survey was conducted on a sample of hospitals located in Belgium. A total of 120 questionnaires were issued to either general hospitals, academic hospitals, psychiatric hospitals, or specialized hospitals, the survey was either addressed to the chief executive officer of the hospital facilities or the chief of the administration and financial department, and they received 50 valid responses of the 120 questionnaires.

Because of classifying the level of cost system development identified by the survey into minimum which means the use of only legal costing system, intermediate which mean the process for changing the costing system, and advanced which mean adapted cost system as a result of ABC adoption. Cardinaels and Roodhooft (2004) used an ordered logistic regression as the most appropriate method of analysis for their study.

The result showed that cost system improvement in hospitals is largely determined by health care specific factors, this suggest that health care management should focus on hospital specific elements in order to facilitate ABC adoption.

### *2.2.3 Cardinaels, et al. (2004)*

Cardinaels et al (2004) study reported experimental evidence on the benefits of more accurate cost reports for pricing decisions in competitive market environments.

In an experimental design, researchers displayed subjects to play against each other in two market segments denoted A and B. each market segment has two firms, firm acts as a first mover (leader) while the other acts as second mover (follower), in terms of using accurate or traditional cost data.

All subjects received an initial imperfect cost report, and a report showing the price choices of their competitor and his realized profit, in the final stage, both markets clear and firms received outcome feedback, an updated imperfect cost report and an updated report on the price choices of the competitor and his total profit have been received, this cycle of events is repeated over 10 trials.

The experimental design of the study was 2x2x2. The first factor is that the subjects are assigned either to the role of first mover or the role of second mover. The second factor is that the subjects either received a traditional cost report or more accurate ABC report. And the third factor is that the subjects either receive feedback from a competitor having access to more accurate cost information (ABC) or a competitor using traditional cost reports.

The results showed that the learning from more informative market signals is less effective when one has to act first as leader, also it shows that the participants bias to neglect competitors led to the utilization of distorted cost data instead of more informative market signals, finally the results also showed that the ABC does not always result into a competitive advantage for price setting.

### *2.2.4 Ambe and Sartorious (2002):*

The main aim of their study was to examine the relationship between competition and the performance of strategic business units. Furthermore, Ambe and Sartorious examined the role of management accounting systems (MAS) in the relationship between competition and business performance.

Ambe and Sartorious used descriptive statistics and correlation of variables, these statistics encompasses, mean, median, and standard deviation.

A sample of 40 sets of observations was obtained from managers in 10 manufacturing organizations in the beverage industry in South Africa; part A of the questionnaire required the respondents to assess on a 5- point likert scale the level of competition that is faced by their enterprise as well as the performance of the strategic business unit, in part B the respondents were asked by means of open – ended questions to evaluate in the course of the interview the impact of increasing levels of competition on the use of MAS.

The results of the study suggest that an increase in the level of competition is associated with improved business performance, also the result indicate that an increase in competition is matched by improved return on investment as well as by turnover and net profit, finally the results suggest that there is a positive correlation between the use of MAS and improved business performance and the use of information obtained.

### *2.2.5 Krishnan, Luft, and Shields (2002):*

The study of those researchers showed experimentally that individual choices of the level of product – costing accuracy depend not only on the current level of competition but also on the previous level of competition.

The researchers studied the effects of changes in competition in two experimental economies whose histories are mirror images of each other, and the timing of entries and exits to market in two economies are matched exactly across the two market histories.

The subjects of the study were 26 senior accounting majors, 8 students from masters in accounting program, and one undergraduate subject did not complete the experimental instruments because he did not understand the task. The variables was a 2x3x10 design the market history (increasing or decreasing competition), market structure (number of seller: 1, 2, or 4), and trials in each market (10) times.

The study provides evidence that the amount of cost data collected to support more accurate product costing, first, decreases when competition

enters a monopoly market and then increases as additional competitors enter.

### *2.2.6 Adler, Andre', Everett, and Waldron (2000):*

The purposes of this study were to investigate the extent to which New Zealand manufacturers utilize advanced accounting techniques, as well as trends in their adoption, and to shed light on what firms perceive to benefit from adopting advanced accounting techniques, and finally to identify barriers hindering adoption and/or implementation of new accounting techniques.

A survey of this study was mailed to all specifically identified New Zealand manufacturing site with 20 or more employees, the questionnaires were addressed to the plant accountant, the annual sales of respondents ranged between NZ $ 1 million and NZ $ 500 million, of 881 questionnaires 165 completed questionnaires received.

The findings of this study strongly indicate a continuing rapid shifts toward the advanced methods, and towards combined use of multiple advanced methods, also the results indicates that the advanced management accounting techniques are perceived to offer significant benefits, finally use of advanced management accounting techniques may provide firms an opportunity to realize a competitive advantage.

### *2.2.7 Callahan and Gabriel (1998):*

This study investigated whether the competitive dimensions of a firm's product market environment affect the need for increased product cost accuracy to enhance profit, so that, researchers directly explore the linkage between product cost accuracy, managerial pricing and output decisions, and firm profits in a competitive market setting, they specifically examine the differential impact of product cost measurement errors on firm profit in imperfectly competitive market, by focusing on two market structure (Bertrand & Cournot market)4 and their linkages to the firm's product market strategy.

A laboratory market design was employed in this study, which allows for strategic reaction by a rival firm and the control of precision of the cost report in two imperfect market structures with imperfectly substitutable products.

The main result of this study was that the profit is higher in the experimental cost leadership markets (Cournot Market) when subjects know their true cost, while profit is higher in the experimental product differentiation markets (Bertrand Market) when subjects receive uninformative costs reports and make their decisions based on expected costs.

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[4] Bertrand Market:- is the market where the firms compete on the basis of product differentiation.
Cournot Market:- is the market where the firms compete on the basis of cost leadership.

Also another result of the study suggest that the value of more accurate costs reports may be dependent upon the firm's competitive market structure, strategy, and product market strategy.

### *2.2.8 Hansen (1998):*

The researcher stated that the most three frequently cited reasons for updating a firm's accounting system is: first, the need for improved pricing, second, the need to control overhead costs, and third, the need to deal with increased competition, and stated that competition is often cited as the motivating force for both improved pricing and the need to control overhead costs. In this study the researcher studied this relationship and created a theoretical model to investigate how competition affects design of a cost accounting system.

The model of Hansen's study contains three separate stages, in the first stage, the firm decides how much information to collect about the underlying production cost, in the second stage, the firm uses the cost information to determine how much to invest in cost reduction, finally, the firm produces output at a new marginal cost and sells the output in a cournot market.

The model used in study captured the three key accounting features, production of internal information (first stage), the use of cost information in cost reduction (second stage), and the use of cost information in product pricing (third stage).

The main result of study revealed that the increasing competition can lead to a lower investment in cost reduction, which implies that there is an inverse relationship between competition and the amounts invested in activity based management or any other accounting cost reduction program.

Another result stated that the high – cost producers need not to be the largest investors in cost reduction. The relationship between cost estimate and cost reduction investments depends upon whether the firm's sales elasticity is above or below a threshold, and if the firm is a sufficiently large seller in the market, then the increase in market sales due to lower costs will be sufficient to recoup a large cost reduction investment. On the other hand, if the firm small market participant then the firm can not increase sales enough to recover a major investment. So the lowest cost producers will invest the greatest amount in cost reduction and the high cost producers will be partially shut out of the market.

Finally the results showed that a firm's demand for data displays a U shape. As the competition rises, firms initially decrease then increase the amount of data collected.

### *2.2.9 Gupta and King (1997):*

The main objective of this study was to investigate experimentally how reports from different costing systems might be used in decision making process, the researchers focused on the extent to which subjects

modified cost reports in light of information received from profit feedback and their understanding of the product characteristics which suggested how reports could be distorted, they also investigated how the complexity of the economic environment and the accuracy of cost reports affected the ability of subjects to incorporate profit feedback and supplementary product information into their forecasts.

Gupta and King (1997)constructed two costing systems (denoted S1 & S2) with two economic environments (denoted E1 & E2). S2 provides a more accurate report of costs than S1. The products in E2 are more divers in their resource usage than products in E1.

The analysis focused on four experimental settings:

- E1S1: simple environment with less accurate costing system.
- E1S2: simple environment with a more accurate costing system.
- E2S1: complex environment with less accurate costing system.
- E2S2: complex environment with a more accurate costing system.

The results indicate that the subjects did not base their forecasts only on cost reports rather they use profit feedback from previous periods and other available supplemental product rank information to revise their forecasts and increase their profits. However, the profit made by subjects were lower in the complex economic environment than in the simple environment but increased when they were given more accurate cost reports.

### *2.2.10 Libby and Waterhouse (1996):*

In this exploratory study the researchers examine the extent and correlates of changes in management accounting and control system (MACS) in a sample of Canadian manufacturing organizations. The focus is on change at the organizational level rather than on the management of change within organizations.

The variables and measures taking a contingency theory perspective, there are many variables are identified as potentially relevant predictors of change to management accounting systems:

1- Decentralization.

2- Size.

3- Competition.

4- Capacity for change.

In this study the researchers chose a measure that focuses on the number of change in MACS that were adopted in a particular organization during a specific time period rather than of the extent to which the changes were integrated into daily operations.

A sample of 40 organizations was randomly selected and limited to manufacturers with more than 100 employees. The measures of the dependent and independent variables were collected via a 30 minutes telephone interview. Participants were at the assistant controller level or above. Of the original 70 sample organizations 24 agrees to participate.

The regression analysis supports a positive relationship between capacity for change and change in MACS. Evidence in support of this relationship was found in the significant correlation and in the significantly positive regression coefficient. Strong relationship observed between accounting systems changes and organizational capacity, implies that change is proportionate to the number of systems.

Moderate support was found for the prediction that more intensity competitive environment would lead to a large number of MACS. Managers faced with high levels of competition may ask for more and different types of information from there system before making crucial decisions.

Also the regression analysis showed no significant relationship between the number of changes and decentralization.

### *2.2.11 Khandwalla (1972):*

The researcher examined the effect of different types of competition, such as pricing, marketing or distributive, and product competition on the use of management control on manufacturing organizations.

The purpose of this study was to outline some of the competitive conditions under which sophisticated management controls are more extensively utilized and those under which are less extensively utilized, also this paper empirically confirm the argument that the greater

competition, the greater the need to control cost and to evaluate whether production, marketing, and finance operating according to expectations.

Findings were based on ratings made by president of 92 manufacturing firms were randomly selected and drawn from a wide variety of American industries. The 92 firms had average annual sales of about $50 million.

The findings revealed that there is a positive association between competition and the use of sophisticated management controls. The data of the research suggest substantial differences among three competition types regarding their relationship to the usage of management controls. Price competition appears to have little, if any, impact on their usage, distributive competition appears to have a modest positive impact, and product competition seems to have a much larger positive effect on their usage. Hence, designers of control systems need to supplement their information about the extent of the general competitiveness of their firm's environment by information about the intensity of the specific forms of competition.



## 2.3 Comments on the Previous Studies

As indicated above previous studies are conducted in different environments and applied on many sectors, it is easy to notice that the previous studies treated the relationship between the effects of costing systems and competitive advantage of the firms in different ways, also these studies reached to various conclusions, and used various methodologies.

Some studies investigated the association between the costing systems designs and the relevance & usefulness of cost data and the dynamic environment. Pizzini (2006) concludes that hospitals have not yet adjusted their cost systems to accommodate the increased information needs created by environmental changes. In another study, Ambe & Sartonious (2002) argued that there is a positive correlation between the use of management accounting systems (MAS) and improved business performance, and the use of information obtained from MAS could be an appropriate response to increasing levels of competition, in addition Gupta & King (1997) suggest that the profits made by the subjects of the study were lower in the complex economic environments than in the simple environments, but increased when they were given more accurate cost reports.

Callahan & Gabriel (1998) developed another study examines whether the competitive dimension affect the need for increasing product cost accuracy, and conclude that the value of more accurate cost reports may be dependent upon the firm's competitive market structure strategy and product market strategy.

In the study conducted by Hansen (1998) stated that the most frequently reason for updating a firm accounting systems are the need to deal with increased competition, and conclude that the firm's demand for data are displays a U shape, which mean, as competition rises, firms initially decreases then increases the amount of data collected, while

Krishnan, et al. (2002) concluded that the amount of cost data collected to support more accurate product costing, first, decreases when competitor enters a monopoly market and then increases as additional competitor enter.

Also there are some studies examine the effect of using advanced and sophisticated management accounting & control systems (MACS) on the competition, Adler, et al. (2000) concluded that the use of advanced MACS may provide firms an opportunity to realize a competitive advantage, while the regression analysis made by Libby, and Water house (1996) suggest that there are a positive and moderate relationship between the intensity of competitive environment and the number of MACS used. Khandwalla (1972) founded that there is a positive association between competition and the use of sophisticated MACS.

Another studies concentrated on a specific type of costing system, such as, activity based costing system (ABC). Cardinael, et al (2004) concluded that ABC did not always result into a competitive advantage for price setting. In another study concluded by Cardinael, and Roodhooft (2004) the results showed that health care management should focus on hospitals specific elements in order to facilitate ABC adoption, and in turn, enhance the performance.

The findings of the above mentioned studies were subject to many usual limitations which made the ability to generalize these findings to

another sectors or environments very difficult, also there is additional limitation mentioned by researchers, we list it here below:

- Sample size may be very small.
- Cross – sectional studies may establish associations, but not causality.
- Some studies conducted by using a mail-survey which may prevent actual assessment of respondent's knowledge and understanding.
- The single-industry sample limits the ability to generalize these findings.

## 2.4 Distinguishing the Study from the Previous Studies

This study distinguishes itself from the previous studies in many main points as follows:

- This study concentrates on the relationship between the costing systems used in the firms and the competitive advantage of these firms without concentrations on any specific costing system.
- This study will target the CEO's as users of accounting information in decision making process, or CFO's as preparers of this information.
- To the best of researcher's knowledge, this is the first study attempted to study the relationship between costing systems and competitive advantage in Jordanian environment.

- Most of the above mentioned previous studies are an exploratory studies which mean that these studies put control over many variables which may have a significant effect on the results of the study, but this study, to the best of researcher's knowledge, mentioned to some extent all types of variables which may have an effect on the relationship between costing systems and competitive advantage of the firms.

# Chapter Three

## Theoretical Background

3.1 Part One: Cost Accounting and Costing Systems.

3.1.1 Introduction

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3.2.1 Introduction

3.2.2 Definition and Types of Competition

3.2.3 Relationship Among Costing Systems and Competition

## 3.1 Part One: Cost Accounting and Costing Systems

### *3.1.1 Introduction:*

Accounting as a service activities intend to provide information to financial report users to assist them in their decision making. As a result of variation in needs of those users, accounting has responded by developing subfields, or areas of specialization. One of these subfields is Cost Accounting.

Cost Accounting is a unique subfield of accounting that interfaces with the other subfields of accounting especially financial accounting which became unable to satisfy the needs of those who are using the information derived from financial accounting.

The main users of information derived from cost accounting and costing system is management and other internal users within the company. They need such information not only in their decision making process, but also in many other activities as follows:-

- Measuring the cost of production and cost of inventory.
- Providing information about the production capacity in each department or production process.
- Preparing budgets and evaluating such budgets based on actual performance.
- Helpful to prepare financial statements for external users.
- Assisting the controlling process

### *3.1.2 Cost Accounting:*

#### 3.1.2.1 Cost Accounting Evolution:

The beginning was with costing but not with cost accounting, because the concentration was only on recording cash transactions as an economic resource, so that, the accounting has been emphasizing on providing stable and accurate data about these transactions (Al-Tykryte, 2006).

Costing is a very old Science, the pharaohs used costing systems in many activities as agriculture and architect activities, also in the Islamic period accounting principles were used to identify the financial position of the Islamic treasury (Krajeh, 2001).

The existence of cost accounting was on fourteenth century, and from this time until eighteenth century the concentration was on recording and analyzing inventory, also concentration was devoted to record and analyze depreciation, so that, analyzing of price became necessary especially in the seasonal project (Krajeh, 2001).

After that costing was classified into variable and fixed cost and in the same time there was a need to prepare budgeted cost to enable the management in identifying the price of its products to utilize and enter tenders (Krajeh, 2001).

By late of the eighteenth century and as a result of technological development beyond traditional industry, and the existence of mass production which need more than one process, process of costing system

was developed. There are many books were issued in this regard, one of the most important books was "Production Cost" by Henry Vekalve on 1889 (Krajeh, 2001).

On the twentieth century, and with a rapid increasing of capitals and industries, the production was sharply increased, so that, a great universal recession was happened on 1929 and lasted to 1932, this recession forced governments to interfere and to change many economic theories, especially in relation to production, depreciation, and allocation of costs, afterwards, there was calls to clarify the relationship between cost components and production capacity (Al- Jazarawi, et. al. 1996).

In the same period cost was reclassified into variable, fixed, and semi variable cost. These classifications were used in identifying cost, projected profit, production capacity, and sales, so that, the use of cost accounting was for both industrial and non industrial firms (Al- Jazarawi, et. al. 1996).

Finally in these days, cost accounting plays an essential role in many activities, and helps not only in measuring cost of production but also helps management in decision making, planning, and controlling processes.

**3.1.2.2 Cost Accounting Definition:**

There are many definitions for cost accounting but when we look to these definitions we note that it is very close to each other, so that we will present below some definitions of cost accounting.

The Institute of Cost and Works Accountants (ICWA) (U.K) defines cost accounting as:

"The process of accounting for cost from the point at which expenditure is incurred or committed to the establishment of its ultimate relationship with cost centers and cost units. In its widest usage it embraces the preparation of statistical data, the application of cost control methods and the ascertainment of the profitability of activities carried out or planned" (lal, p34, 1985).

Stallmen and Russell define cost accounting as:

"That portion of the accounting discipline concerned with the development of cost information related to the activities of an economic entity. This cost information may be estimated future costs developed for planning purposes, or accumulated actual costs toward the evaluation of performance. It may emerge somewhat routinely out of a carefully designed system which has been developed to provide information regarding recurring activities, or be the result of a special cost study directed to an objective not considered in the design of regular system"(lal, p35, 1985).

Horngren define cost accounting as:

"Mix of managerial and financial accounting in a way that makes cost accounting able to provide information helps in accomplishes external financial statements" (Al-tykrety, p21, 2006).

Also cost accounting defined as:

"A subfield of accounting concerned with measuring, recording, and reporting costing information" (Al-tykrety, p21, 2006).

According to Morse:

"Cost accounting is the processing and evaluating of monetary and non-monetary data to provide information for external reporting, internal planning and control of business operations and special analysis and decision" ( lal, p35, 1985).

From the above-mentioned definitions we can list below the characteristics of cost accounting:

1) It is a subfield of accounting discipline.
2) It is a process, which mean that there is more than one stage or process in preparing cost reports.
3) It serves management as planning and controlling tools.
4) It provides information in order to prepare external reports.

### 3.1.2.3 Cost Accounting V.S Financial Accounting(Owen, 1988):

In many text books cost accounting considered one subfield of financial accounting, but cost accounting appeared in order to respond to the internal users needs, and so, there is a relationship between cost accounting and financial accounting as illustrated below:

1) One of the most important purposes of financial accounting is clarifying financial position of the company, by preparing financial statements such as income statement, balance sheet. Cost accounting provides relevant information in preparing these statements.
2) Cost accounting provides financial accounting with information regarding inventory, whether this inventory raw materials, work in process, or finished goods, which considered as one portion of current assets, and appeared in balance sheet.
3) Information provided by cost accounting to financial accounting considered as controlling tools.

Although there are relationship between cost accounting and financial accounting, but cost accounting differ from financial accounting in many things as follow:

1) The main users of information derived from financial accounting are external users as creditors, investors, and lenders. But users of information derived from cost accounting are internal user as management and other departments.

2) Financial accounting concerned primarily with the preparation and presentation of reports on assets, equities, and net income of a business enterprise as a whole. Cost accounting classifies, records, presents, and interprets in a significant manner the materials, labor, and overhead costs involved in manufacturing and selling each product, or each job or rendering service.

3) Financial accounting ruled by general accounting principles (hereafter GAAP), and using it is very necessary in conducting financial statement, also using it adds creditability and reliability to these financial statements and creates confidence among the financial statements users. On the contrary, cost accounting is not bound to use the GAAP. It can use any accounting technique or practice which generates useful information.

4) Unit of measurement in financial accounting is monetary unit, but cost accounting may use any units other than monetary units such as labor hours, machine hours, and product units.

5) Time span of financial accounting statements always definite period, usually one year, while cost accounting statements can be prepared whenever needed, monthly, weekly, or even daily.

#### 3.1.2.4 Cost Accounting Purposes (Magee, 1986).

There are many purposes achieved by using cost accounting are mentioned below:

1) Identifies the cost of unit, and measuring the cost of each component used in production process.
2) Helps in identifying the equivalent selling price of finished goods.
3) Provides a suitable basis in order to evaluate finished goods, work in process, and raw materials at the end of period in order to be presented as part of the balance sheet.
4) Provides relevant information in decision making process, these information are considered as basis of decision making process, through comparing among available alternatives and choosing the best one, and evaluating the internal performance of company.
5) Helps in preparing budgets and controlling expenditure to reduce the cost of production, and in turn increase profits.

### *3.1.3 Costing Systems:*

#### 3.1.3.1 Definition of Costing System:

A proper cost accounting system helps management in planning, controlling business operations, analyzing product profitability, and accomplishing business objectives through utilizing available resources effectively, and in turn, enables the company to survive in the present day competitive conditions.

System can be defined as:

"A groups of components interrelated with each other in order to achieving particular goal" (Al-Jazarawi, et al. p13, 1996).

Whereas costing system is defined as:

"Cost system is a system that accumulates costs, assigns them to cost object or objectives, i.e., products, jobs, processes, etc. and reports cost information" (Lal, p44, 1985).

#### 3.1.3.2 Factors Affecting Costing System (Bragg, 2001):

When a cost system is designed, we should consider the following factors:

1) **Size of the firm:** The complexity of costing systems depends on the size of the firms. As the size and business grows, management requirement for cost data and information increase.

2) **Manufacturing process or methods:** Degree of complexity on manufacturing process such as production layout and arrangement, production scheduling, and production control methods....etc, affect on the designing of costing systems.

3) **Nature and number of products:** If a single product is produced, all costs of direct material, direct labor, and other expenses can be directly allocated to that product. But if there are two or more products being produced, the process of developing cost data is more complex.

4) **Management control needs:** The design of cost accounting system is guided by management control requirements, also management's attitude towards cost information must be considered when designing cost accounting system.

5) **Raw materials:** The nature of raw materials and the degree of spoilage influence the designing of the cost accounting systems.

6) **Staff efficiency:** The working and formulation of cost accounting systems depends on the quality of personnel, so the staff in cost accounting department should be competent enough to produce required cost data. Similarly, persons using these reports should be equally able to utilize the information meaningfully.

7) **Comparability:** It is better for the company to use cost accounting systems used by other company in the same industry in order to achieve comparability principles.

8) **Organizational structure:** The cost accounting systems must correspond to the organizational division or authority.

9) **External factors:** The main dominants of cost accounting systems is internal factors, but there are many external factors influence cost accounting system such as government authorities may require certain cost information to be developed and disclosed.

### 3.1.3.3 Types of Costing Systems:

There are many different costing systems are applied in business to assert cost depending on the nature of the product, production method, and any other specific business conditions.

In the following section, the most popular types of costing systems will be explained in more details, such as job order costing system, process costing system, and activity based costing system. Then other types of costing systems will be explained briefly.

- **Job Order Costing System (Bragg,2001):**

Job costing is the most common method used in allocating and classifying cost. Most cost accountants have experienced this system at some point in their careers.

Job costing system applied in companies which produce a large product and high cost of production and ordered on relatively small amounts such as ships, planes, elevators, and constructions.

A company uses this system depends on the specifications provided by costumers identifying the number and the quality of goods. The cost of these goods is known before production process and there is no any production process before receiving order by costumers.

The main feature of job order costing system is that no two orders are necessarily alike and all orders do not pass through the same manufacturing process.

- ***Advantages of Job Costing Systems:***

1) The primary advantage of job order costing systems is that the management team has ready access to all the costs incurred for each job being completed. This allows the team to examine each cost incurred, finding out why it happened, and determine how it can be controlled better in the future.
2) Job costing system yields ongoing results for each job, which mean that one can use this system to track costs as they are added to a job rather than waiting until the job has been completed.
3) Based on the costing information revealed by job order costing system, the company can monitor the costs incurred for longer jobs and have enough time to make changes before they close the account of each job.
4) Job order costing systems provides a basis for comparing one job cost to another.

- ***Disadvantages of Job Costing Systems:***

1) Job order costing system focuses attention primarily on products rather than on departments or activities.
2) Job order costing system ignores the fluctuation in overhead cost over the course of a year because it generally allocates overhead cost based on rates that are changed only about once a year.

3) As noted in the previous point, this practice involves the use of a standard overhead rate rather than one that is based on actual costs and requires adjustment from time to time. If management intends to charge individual jobs for the variance between standard and actual overhead rates, this may not be possible if some jobs have already been closed by the time the variance allocation takes place.

4) Job order costing system may be irrelevant in many fields. For example, the software industry has high development costs but almost zero direct costs associated with the sale of its products.

5) The most important problem with job order costing systems is that it requires a major amount of data entry and data accuracy in order to yield effective results.

- **Process Costing System (Bragg, 2001):**

Process costing system is used in many industries which produces large quantities of similar product. It makes no sense to track the cost of either individual product or small batches of them. Instead, costs are averaged over large quantities of production, yielding the same unit costs for all items in a production run.

Process costing system is used where job costing system cannot be used. There are many types of industries using process costing system such as oil refining, food production, and chemical processing.

There are three methods of process costing system may be used to calculate cost of product.

1) **Weighted Average Method:** This method assumes that all costs, whether from a preceding period or the current one, are lumped together and assigned to produce units. It is the simplest method used to calculate cost of product. This method is used in situations where there is no standard costing systems or where the fluctuations in costs from period to period are so slight.

2) **Standard Costing Process Method:** The calculation of cost under this method is similar to that for weighted average method. It used standard costs, these costs are assigned to production units rather than actual costs; after that total costs are accumulated based on standard costs, these totals are compared to actual accumulated costs and the differences is charged to a variance account. It is also useful in situations where companies manufacture such a broad mix of products that they have difficulty accurately assigning actual costs to each type of product

3) **First In First Out Method:** this is a more complex calculation that creates layers of cost, one for units of production started in the previous production period but not completed, and another layer for production started in the current period. This method is used when there are significant changes in product costs from period to period.

- ***Advantages of Process Costing Systems:***

1) It is the only reasonable approach to determining products costs in many industries.
2) From the three process costing methodologies just described in the previous section, a company can select the best one for determining costs in either a standards or actual cost.
3) Process costing system uses most of the same journal entries found in a job order costing system.
4) There is no need to restructure the chart of accounts when there is an attention to shift from job order costing system to process costing system, so this makes it easy to switch over to a job costing system from process costing one if the need arises, or to adopt a hybrid approach that uses parts of both systems.

- ***Disadvantages of Process Costing Systems:***

1) Determining the percentage of completion is the most obvious problems in process costing system, depending on this percentage the amounts of costs will be assigned to units of production in each period. If the percentage is incorrect, resulting unit valuation will also be wrong.
2) When any methodology of process costing system are used for individual departments, and when there is a transfer cost, each

successive department inherits costs from the preceding set of departments that have charged costs to the products being manufactured and so have no idea which portion of the incoming costs are variable and which are overhead. It is important to know the portion of variable cost because it is used in pricing decisions.

3) The data in process costing systems shifts from department to another, while in job order costing system assigns costs to specific jobs, so there are many problems will arise when shifting from process costing to job costing.

- **Activity Based Costing System (ABC hereafter):**

Because of the shortcoming of traditional cost allocation systems ABC system where developed. The problem with the traditional systems where that these systems don't allocate overhead in a manner that truly reflects the use of overhead.

ABC system was invented in order to introduce a logical system of overhead allocation that would result in better information and improved related management decisions.

In ABC system direct materials and labor are charged to specific products, while also charging overhead costs to a series of cost pools; these pools are then allocated to various activities in the production process, which are in turn used as the basis for cost allocations to specific products.

ABC system is a highly detailed system that seeks to allocate all costs in a comprehensive manner as possible, so that the recipients of resulting information have the best possible information about the complete set of costs incurred by a product.

- ***Advantages of ABC System (Horengen & Foster, 1991):***

1) Activities within various departments may be compared or be combined with activities encompass many costs.
2) To better manage activities and make wiser economic decision, executives want to identify the relationship in term of causes (activities) and effects (costs) in a more detailed, accurate manner by using ABC rather than traditional costing system which use only one cost pool.
3) By using ABC management will concentrate on the underlying activities, not products. If the activities are managed well, costs will fall and the resulting products will be more competitive.
4) Unlike traditional costing systems, ABC induces product designer to reduce the number of parts and prompts operating personnel to reduce the number of vendors and transactions.
5) Developments in information-gathering technology, has made practical the gathering and processing of more detailed information demanded by ABC.

- ***Disadvantages of ABC System (Bragg, 2001):***

1) Some companies hear about the wonders of ABC system and demand that it be installed on company without considering whether or not that company actually needs it.
2) ABC system may not be effective at the company with single product. Only a minor improvement in accuracy of costs allocations may be achieved in comparison with the cost of installing ABC system over the existing one.
3) ABC system installing requires very long time. Especially if the desired system is a comprehensive one that straddles multiple products line and facilities.
4) ABC system extracts information from and reports on the activities of many departments. If a sufficient number of department manager are irritated by the reports issued by ABC system, they will use a variety of methods to prevent information from it so that the ABC system no longer yields a sufficient amount of information to make it worthwhile.
5) ABC system almost involves construction of a data separate from the general ledger. If ABC system database becomes so massive that is unwieldy, and in turn, this needs more effort by accounting staff which creates resistance within the accounting department.

6) Users of information derived from ABC system may have become familiar to see the same accounting reports for a number of years and ignore the new one.

7) As the number of cost pools increase the accuracy of information derived from ABC system will increase, but as the number of cost pools increase the ABC system becomes much more expensive and complex.

- **Other Types of Costing Systems (Bragg, 2001):**

- **Direct Costing System:** It deals only with a portion of a company's total costs. It collects data only about costs that can be directly and indisputably assigned to a specific product or activity and charges all other costs to the current period. It is most commonly used for determining the minimum price point at which an item can be sold.
- **Throughput Costing System:** It dose not involve any costs, it focuses only on the incremental gross margin generated by a company. It assumes that changes in costs elsewhere in a company do not have a substantial impact on bottom-line profits. This method particularly used for determining incremental changes in production mix.
- **Target Costing System:** This system involves the accumulation of costs for new products currently under development and the use of this information to determine if such products can be manufactured

at a target cost that will generates sufficient profit to make the development efforts worthwhile.

## 3.2 Part Two: Competition:

### *3.2.1 Introduction:*

Many people invest in businesses to increase their wealth. Money can be invested in many ways. One way is to deposit money to a bank. Banks will pay a low rate of interest to use money, but that money is relatively safe. Alternately, that same money could be invested by buying an ownership with the expectation to receive higher rate of return associated with higher level of risk (Daly, 2002).

From the above paragraph we note that the objective of anyone is to invest in any equivalent instruments to generate a superior financial return, even in companies, the owner's or management objective of achieving a superior financial return becomes the objective of the management team.

To achieve a superior financial return, management seeks ways to have buyers prefer their company's products to the products of their competitors.

Also as known by Profit equation:

**Profit = Revenue – Expenses**

Companies may achieve superior profit by increasing revenues or decreasing expenses, but when there are many rivals in the market, the possibility of increasing revenue is considered uncontrollable and external

factors because all rivals in market are price taker, within perfect competition, while there is possibility to decrease expenses because its internal and relatively controllable ones.

In the following section competition definition, types of competition and relationship between costing systems and competition will be explained.

### *3.2.2 Definition and Types of Competition:*

Competition has been mentioned in many text books and by researches but most of them don't give a clear definition for competition because the definition of it is known implicitly.

Wijnberg (1995) on his article *technological paradigms and strategic groups: putting competition into the definition* defined Competition as:

"The actions of a competitor might possibly influence the performance (market share, Profit) of another competitor and that therefore a competitor will take the actions and decision of competitors into account when planning his own actions"( Wijnberg, p256, 1995).

Also Daly in his book Pricing for Profitability defined competition on glossary of this book as:

"To seek anything (such as sales, costumers, and market share) for which another is also striving" (Daly, 2002).

- **Types of Competition:**

Competition occurs in many types of activities done by rivals in the same industry, but competition occurs in the domains of price, advertising and promotion, and quality. Firms often face one or more of these domains (Chaganti et. al. 1989).

In addition to price, advertising, and quality, competition may occur in diversification, R&D, and technological innovation (Khandwalla, 1972).

Different types of competition affect the competitive strategy, rivals may use one or more of these strategy according to their specific strengths and weaknesses.

Competitive strategy classified into three types as follows (Chaganti et. al. 1989):

**Cost Leadership Strategy**: In this strategy the firm attempts to compete by achieving overall cost leadership in industry, this requires aggressive construction of efficient-scale facilities, vigorous pursuit of cost reductions from experience, tight cost and overhead control and so on.

- **Differentiation Strategy**: It seeks to create perception among customers that its offerings are something unique. Differentiation can take many forms such as design, brand image, product features, technology, and customer service.

- **Focus Strategy**: firms using this strategy specialize in supplying the needs of a particular" buyer groups", segment of the product line, or geographic market.

Also we should know that competition varies according to its strength and may there are strong competition in one industry while it may be weak in another one, so text books and researches classify the competition into three degrees as listed below:

**Table (1-3): Degrees of competition**

| Pure or Perfect Competition | Monopolistic or Imperfect Competition | Complete Monopoly |
|---|---|---|
| Includes a few industries | Includes most firms and industries | Includes rare industries |
| No control over price by firm | Some control over prices[5] | Considerable control over price[6] |
| Production of identical product by many firms | Seller of identical product are few at best, though there may be many sellers of somewhat similar products | Only one seller on industry |
| Usually an organized market exchange or auction | Advertising rivalry | Institutional and Public relation |

**Source:** *Cramer Dale, and William Henser (1996), Variations in the Definition of the Degrees of Competition, the American Journal of Economics and Sociology, pp395-396.*

### *3.2.3 Relationship Among Costing Systems and Competition:*

A firm in the marketplace may face price, product differentiation, and any other type of competition. In all cases there is a relationship between costing systems and competition, and costing system affects how a firm competes in all types of competition.

[5] Control over prices on monopolistic or imperfect competition depending on similarity of substitute products and upon the numbers, location, etc., of rivals.
[6] On complete monopoly there is a considerable control over price expect as limited by government regulation, fear of public opinion, or fear that substitute products will come into use.

When companies set their selling price according to the market price, their cost systems influence the production capacity and whether to continue to produce and sell the products or not.

Also when companies determine their selling price under competitive bidding or any other forms of cost-plus pricing, the product costs determined by costing systems directly affect the selling price, also by using data derived from cost systems we can determine which types of cost must be considered in decision making process under these competitive bidding.

In addition companies may face any other types of competition (for example, product differentiation and innovation). Data derived from cost systems regarding product cost influence the timing and frequency of new product introduction.

# Chapter Four

## Study Design and Methodology



4.1 Introduction

4.2 Research Framework

4.3 Hypotheses Development

4.4 Population and Unit of Analysis

4.5 Data Collection Techniques

4.6 Data Analysis Techniques

## 4.1 Introduction

There have been many efforts investigating the value of different types of costing systems for pricing and many other decisions, decision maker tend to fixate their decision on the output of cost system (Cardinaels, et al. 2003; Ashton, 1976)

In this study, methodology was developed to investigate the value of costing system for improving competitive advantage of the company, the methodology was developed by identifying the research framework, hypothesis development, population and unit of analysis, data collection techniques, and data analysis techniques.

## 4.2 Research Framework:

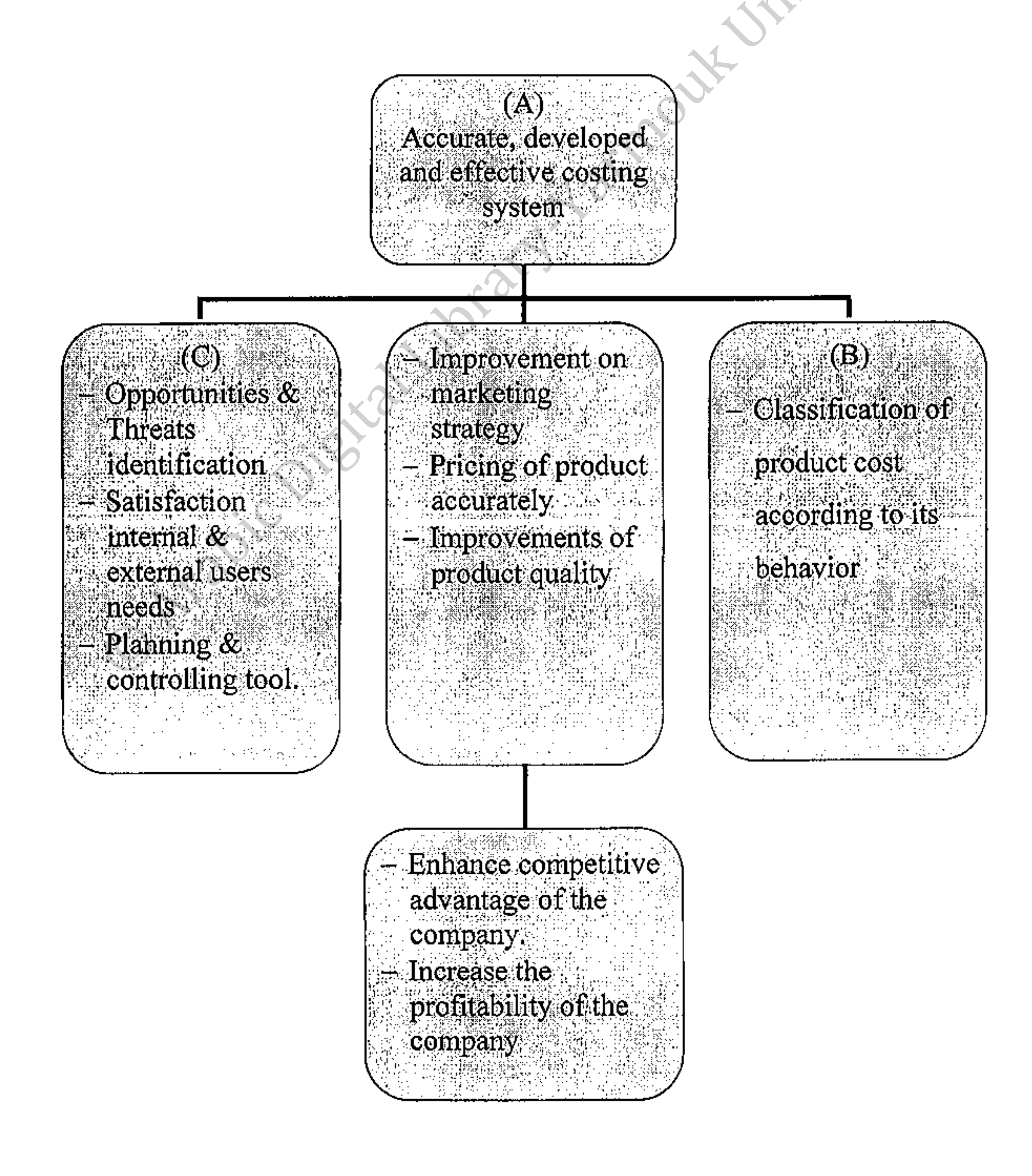
The relationship between the costing system and competitive advantage of industrial firms is developed by a researcher after reviewing related studies such as Ambe and sartorius (2002) and Hansen (1998), and demonstrated in figure 4.1.

It indicates that accurate, developed, and effective costing system (as in A) affect positively on the types of competition such as pricing, marketing strategy, and quality competition. This reaction is associated with increased the accuracy of cost classification according to its behavior, and in the same time costing system may be used as controlling and planning tools in order to enable the company to identify market

opportunities and threats, and provide relevant information to external and internal users (as in C), and in turn, enhance the competitive advantage and increase profitability of the company.

**Figure 4.1 Relationship between variables (cost accounting, competition, competitive advantage, and profitability)**





## 4.3 Hypotheses Development:

The main objective of the study is to investigate the effect of costing system on the competitive advantage of industrial firms, also this study aimed to clarify the effect of costing system on firms profitability by many factors which may be affected by the level of costing system accuracy, to achieve these objectives the following alternative hypotheses will be tested:

**$H_1$:** There is a positive relationship between costing system and firm competitive advantage.

**$H_2$:** Using modern and sophisticated costing system will enhance competitive advantage of the company in terms of pricing, marketing or distributive, and product competition.

**$H_3$:** Using modern and sophisticated costing system will enhance the profitability of the company.

**$H_4$:** Using modern costing system enable the company to classify its costs accurately

**$H_5$:** The use of financial information derived from costing system helps in identifying market opportunities and threats.

**$H_6$:** Accurate and modern costing system enables the company to provide financial information which satisfies the user's needs.

**$H_7$:** Accurate costing system enables the company to prepare budgets and evaluate actual performance.

**H8:** The choice of costing system is based on the application of Cost – Benefits analysis.

## 4.4 Population and Unit of Analysis:

The hypotheses of the study were tested by using questionnaire consist of 35 items, each item or group of items of this questionnaire were devoted to support and approve or reject specific hypothesis.

The questionnaire targeted CEO's or CFO's on Jordanian industrial firms. To ensure that the company uses costing system in preparing financial statement which must be issued annually , Industrial firms listed on ASE in the first market were surveyed on this study, firms listed in the first market were targeted because it followed all instructions and regulations set by ASE and government.

To acquire information about the firms which must be considered as population of study. Electronic site[7] of ASE was reviewed to identify the location and another related information about these firms.

There were 37 companies listed on ASE in the first market on December 31, 2006. Questionnaire was distributed to CEO's or CFO's to be completed by them in their work locations. Questionnaire was distributed to all members of population because the population is relatively small. Thus the sample of the study covered all the population.



[7] http://www.ase.com.jo/pages.php?menu_id= 144&local_type=0&local_id=0&local_details=0

## 4.5 Data Collection Techniques

Collection of data needed for this study has been done through two sources, secondary and primary.

### *4.5.1 Secondary Source:*

The secondary source represents the related information that are found in Arabic and English books, articles, periodicals, working papers, and theses, in addition to some related and valuable websites. After a thorough consideration of the related literature, the theoretical framework is developed.

### *4.5.2 Primary Source:*

A questionnaire in the Arabic language is constructed using a Five-Point-Interval Scale (Likert Scale)[8]. It is personally administrated to the predetermined samples of respondents of CEO's or CFO's. It consists of 35 items devoted to test the hypotheses of this study.

After reviewing previous studies and other related texts books the questionnaire was self developed, the questionnaire was examined by six examiners and linguistically reviewed by one reviewer.[9]

The questionnaire were distributed to respondents on 37 companies in their work location as mentioned in the previous section. The process of

[8] See Appendix (A).
[9] See Appendices (B).

distribution and collecting back the questionnaires has taken 33 days, begins on May 3, 2007 and ends on June 5, 2007. 30 out of 37 questionnaire were returned back by respondents and considered as a sample of this study.

### 4.6 Data Analysis Techniques:

After collecting data related to study dimension from the population of study, these data were analyzed by using relevant statistical techniques as follows:

- **Percentage Analysis:** Measuring to what extant the answers are concentrated on one option.
- **Weighted Average of Mean:** This study using this techniques in order to support and improve or reject the hypothesis, to achieve this purpose the highest weight (5) was given to the scale that strongly agree with the answer while the lowest one (1) was given to the scale the will strongly disagree with the answer.
- **Standard Deviation:** measuring to what extant the answer are deviated from its mean.
- **One Sample t-test:** To examine whether there are significant relationship or not, and in the same time to assert the significance level of relationship, to accept or reject the study's hypotheses.

- **Mann Whitney U Test:** To examine whether there are any significant effect regarding time spending on distributing and collecting back the questionnaire which has taken 33 days.

# Chapter Five

## Data analysis

5.1 Introduction

5.2 Results of the Questionnaire

5.3 Characteristics of the Respondents

5.4 Hypotheses Testing

## 5.1 Introduction:

The main purpose of this chapter is present the results of the analysis of the data collected via the questionnaire. The data obtained by the questionnaire are analyzed using statistical tools. The statistical procedures which are indicated in the previous chapter are applied to analyze the characteristics of respondents and to test the hypotheses of the study.

## 5.2 Distribution of the Questionnaire

In order to test the hypotheses of the study, 37 questionnaires are distributed to CEO's or CFO's. 30 copies of questionnaire were returned back and considered for analysis which represents (81% of the study population).

## 5.3 Characteristics of the Respondents:

In the first section of questionnaire there were questions asking about demographics of respondents as mentioned in following Table (5-1), specifically:

### *5.3.1 Professional Career:*

Table (5-1) below showed that the major part of subjects were financial managers.

This percentage indicates that professionals are from high level to give suitable information regarding questionnaire questions.

### *5.3.2 Gender:*

The sample was predominantly 90% represented by males compared with 10% females.

### *5.3.3 Age:*

Respondents age ranges from (21-60) years old, with respondents were mostly within (30–40) years old category as represented by 40% the largest percentage

### *5.3.4 Education:*

Most of respondents are of BA holders representing about 84% of the sample with no representation by Ph.D. holders. These percentages show that the subjects in the sample were highly qualified to answer questions listed in the questionnaire.

### *5.3.5 Academic Major:*

The majority of respondents 97% are specialized in accounting and scarcely 3% were Business majors. These percentages show that most of the respondents are qualified to answer the questionnaire.

## Table 5 – 1: The Distribution of Sample Characteristics

| Characteristics | Category | Frequency | Percentage% |
|---|---|---|---|
| Professional career | CEO's | 2 | 10 |
| | CFO's | 28 | 90 |
| Gender | Male | 27 | [illegible] |
| | Female | 3 | [illegible] |
| Age | 21-less than 30 years | 9 | 30 |
| | 30-less than 40 years | 12 | 40 |
| | 40-less than 50 years | 5 | 16.67 |
| | 50-less than 60 years | 4 | 13.33 |
| | 60 years or more | - | |
| Education | Bachelors | 25 | 84 |
| | Higher Diploma | 1 | 3 |
| | Master | 4 | 14 |
| | PhD | - | |
| Academic Major | Accounting | 29 | 97 |
| | Finance | 1 | 3 |
| | Business | - | |
| Practical Experience | Less than 6 years | 3 | 10 |
| | 6-less than 10 years | 12 | 40 |
| | 10-less than 15 years | 6 | 20 |
| | 15-less than 20 years | 5 | 17 |
| | 20-less than 25 years | 3 | 10 |
| | 25-less than 30 years | - | |
| | 30 years and more | 1 | 3 |
| Professional Certificate | CPA | 4 | 13 |
| | CMA | 5 | 17 |
| | JCPA | 3 | 10 |
| | Others | 4 | 13 |
| | Nothing | 14 | 47 |

### *5.3.6 Practical Experience:*

It is noticed that most subjects in the sample are of 10 years and less experience. These percentages show that the experience of the sample is sufficient to give correct and suitable response.

### *5.3.7 Professional Certification:*

The majority of respondents 40% are qualified or professionally certified, 30% of respondents are CPA or CMA holders, which are the highly recognized certification in accounting field, and the other 10% are JCPA holder which is highly recognized certification in Jordan.

4% of respondents were holder of certificates not included in the questionnaire and they did not mention it, also 14% of them did not hold any certificate.

## 5.4 Hypotheses Testing

In order to achieve the objectives of the study, eight hypotheses are developed. This is done after reviewing the literature and building the theoretical framework.

In the following section, the hypotheses of the study are tested using the appropriate statistical techniques such as: frequency, percentage, standard deviation, mean, one sample t-test, and Mann Whitney U test in order to be supported and approved or rejected,

- **Frequency and Percentage**

**Table 5–2: Frequency and Percentage Analysis**

| No. | Item | Scale | Freq. | [illegible] |
|---|---|---|---|---|
| 1 | within the used costing systems, we can easily customize reports to the specification of use. | SA | [illegible] | [illegible] |
| | | [illegible] | [illegible] | [illegible] |
| | | A | [illegible] | [illegible] |
| | | DA | [illegible] | [illegible] |
| | | SDA | [illegible] | [illegible] |

| No. | Item | Scale | Freq. |
|---|---|---|---|
| 2 | The more developed costing systems, the more company's ability will be to classify costs into avoidable or unavoidable. | VSA | 13 |
| | | SA | 12 |
| | | A | 5 |
| | | DA | [illegible] |
| | | SDA | [illegible] |
| 3 | The more developed costing systems, the more company's ability will be to classify its costs into direct or indirect. | VSA | 13 |
| | | SA | 11 |
| | | A | 5 |
| | | DA | [illegible] |
| | | SDA | [illegible] |
| 4 | The more developed costing systems, the more company's ability will be to classify its costs into fixed or variable. | VSA | 11 |
| | | SA | 15 |
| | | A | 4 |
| | | DA | [illegible] |
| | | SDA | [illegible] |
| 5 | The more developed costing systems, the more accurately a company will price its products. | VSA | 18 |
| | | SA | 7 |
| | | A | 3 |
| | | DA | 2 |
| | | SDA | [illegible] |
| 6 | The more developed costing systems, the more company's ability to layout efficient marketing strategy. | VSA | 9 |
| | | SA | 11 |
| | | A | 7 |
| | | DA | 3 |
| | | SDA | [illegible] |
| 7 | The more developed costing systems, the more company's ability to differentiate its products among the competitors | VSA | 7 |
| | | SA | 11 |
| | | A | 10 |
| | | DA | 2 |
| | | SDA | [illegible] |
| 8 | The more available relevant information, the more costing system ability to provide data helpful in the decision making process. | VSA | 18 |
| | | SA | 9 |
| | | A | 2 |
| | | DA | 1 |
| | | SDA | [illegible] |
| 9 | if accurate and actual information were generated by the company's costing system, the competitors will get more benefits from this information and so will get a competitive advantage. | VSA | 2 |
| | | SA | 4 |
| | | A | 2 |
| | | DA | 16 |
| | | SDA | 6 |
| 10 | The more accurate costing system, the more able will be the company to identify the opportunities and make progress. | VSA | 8 |
| | | SA | 17 |
| | | A | 5 |
| | | DA | [illegible] |
| | | SDA | [illegible] |

| No. | Item | Scale | Freq. |
|---|---|---|---|
| 11 | the more accurate the costing system, the more company's ability to identify the threats which will adversely affect the company performance. | VSA | 7 |
| | | SA | 14 |
| | | A | 7 |
| | | DA | 2 |
| | | SDA | [illegible] |
| 12 | The costing system in use has an ability to identify the difference between budgeted financial results and actual financial results. | VSA | 9 |
| | | SA | 14 |
| | | A | 5 |
| | | DA | 2 |
| | | SDA | [illegible] |
| 13 | The costing system used in the company can explain the differences between the budgeted and the actual financial results. | VSA | 8 |
| | | SA | 13 |
| | | A | 8 |
| | | DA | 11 |
| | | SDA | [illegible] |
| 14 | Depending on the information generated by costing system used in the company, the management can identify its competitors in the same industry. | VSA | 6 |
| | | SA | 11 |
| | | A | 9 |
| | | DA | 4 |
| | | SDA | [illegible] |
| 15 | Depending on the information generated by costing system used in the company, the management can identify the market style (monopoly, duopoly, or perfect competition) . | VSA | 5 |
| | | SA | 8 |
| | | A | 11 |
| | | DA | 5 |
| | | SDA | 1 |
| 16 | Rarely you find that the competition among companies would result in improving the company's performance. | VSA | 3 |
| | | SA | 6 |
| | | A | 4 |
| | | DA | 10 |
| | | SDA | 7 |
| 17 | Rarely you find that the competition among companies results in establishing a costing system that generates accurate and detailed information. | VSA | [illegible] |
| | | SA | 5 |
| | | A | 4 |
| | | DA | 11 |
| | | SDA | 6 |
| 18 | The management considers the competition when identifying the relevant costing system which is or will be used. | VSA | 2 |
| | | SA | 13 |
| | | A | 12 |
| | | DA | 3 |
| | | SDA | [illegible] |

| No. | Item | Scale | Freq. |
|---|---|---|---|
| 19 | The management would rarely consider the competition when making investment decisions. | VSA | 1 |
| | | SA | [illegible] |
| | | A | 6 |
| | | DA | 12 |
| | | SDA | 5 |
| 20 | The qualified costing system helps the company to improve its performance, and consequently results in improving the competitive position. | VSA | 6 |
| | | SA | 17 |
| | | A | 7 |
| | | DA | [illegible] |
| | | SDA | [illegible] |
| 21 | Your company usually differentiate itself with production costs being less than it's competitors. | VSA | 10 |
| | | SA | 16 |
| | | A | 6 |
| | | DA | 3 |
| | | SDA | [illegible] |
| 22 | using better costing system enables the management to compare its production costs with others in the market is helpful in improving its competitive advantage . | VSA | 8 |
| | | SA | 16 |
| | | A | 5 |
| | | DA | 1 |
| | | SDA | [illegible] |
| 23 | your company differentiates itself by improving its products quality comparing with the similar products in the market. | VSA | 10 |
| | | SA | 12 |
| | | A | 6 |
| | | DA | 5 |
| | | SDA | [illegible] |
| 24 | Using better costing system enable the management to compare quality of the company's products with products in the same market which is helpful in improving competitive advantage. | VSA | 10 |
| | | SA | 10 |
| | | A | 8 |
| | | DA | 2 |
| | | SDA | [illegible] |
| 25 | The costing system used in your company can provide the reports to company internal users as needed. | VSA | [illegible] |
| | | SA | 16 |
| | | A | 9 |
| | | DA | 1 |
| | | SDA | [illegible] |
| 26 | The used costing system in the company provides reports for its external users as needed. | VSA | 3 |
| | | SA | 10 |
| | | A | 6 |
| | | DA | 8 |
| | | SDA | 1 |

| No. | Item | Scale | Freq. |
|---|---|---|---|
| 27 | The good costing system has an ability to provide the management with actual and detailed reports when purchasing offers are submitted to your company. | VSA | 9 |
| | | SA | 13 |
| | | A | 8 |
| | | DA | [illegible] |
| | | SDA | [illegible] |
| 28 | The good costing system helps the company to improve interdepartmental co-ordination throughout the company in commensurate with common interest of the company. | VSA | 7 |
| | | SA | 17 |
| | | A | [illegible] |
| | | DA | 2 |
| | | SDA | [illegible] |
| 29 | the costing system used in the company can provide the management with substitute solution for investment opportunities, revising and evaluating these solutions to contribute in improving the competitive advantage. | VSA | 5 |
| | | SA | 16 |
| | | A | 0 |
| | | DA | 2 |
| | | SDA | [illegible] |
| 30 | As using costing systems is not confined to a certain company, so these systems can not be used as a competitive advantage. | VSA | [illegible] |
| | | SA | 7 |
| | | A | 7 |
| | | DA | 11 |
| | | SDA | 2 |
| 31 | The more accurate the costing system, the greater ability of the company would be to identify its competitive position in the market. | VSA | 3 |
| | | SA | 20 |
| | | A | 7 |
| | | DA | [illegible] |
| | | SDA | [illegible] |
| 32 | Accounting information will be more useful and relevant if it is generated by a qualified costing system providing information in more detail. | VSA | 9 |
| | | SA | 19 |
| | | A | 1 |
| | | DA | 1 |
| | | SDA | [illegible] |
| 33 | Using relevant and good costing system results in improving the competitive advantage and thus would results in improving the company's profitability. | VSA | 9 |
| | | SA | 15 |
| | | A | 6 |
| | | DA | [illegible] |
| | | SDA | [illegible] |
| 34 | Using good and accurate costing system helps the company to control overhead costs and thus helps the company improve the competitive position. | VSA | 8 |
| | | SA | 14 |
| | | A | 6 |
| | | DA | [illegible] |
| | | SDA | [illegible] |

| No. | Item | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|
| 35 | **Typically, your company considers the benefits–cost relationship when choosing its own costing system.** | [illegible] | [illegible] | [illegible] |

*[VSA: Very Strongly Agree, SA: Strongly Agree, A: Agree, DA: Disagree, and SDA: Strongly Disagree]*

The table above showed that we can easily customize reports to the specification of use, which means that the costing system plays an essential role in preparing reports according to it's needs. This response is given by 80% of the sample, representing majority of the sample, and no disagreements were reported here.

We found that the developed costing system helps a company to classify its costs into avoidable or unavoidable. This response was given by 83% of the sample which is high enough representing major part of the sample. Also the developed costing system helps the management to classify costs into direct or indirect costs; this response was given by 83% of the sample on item No. 3 which is the largest part of the sample. No adverse opinions were expressed.

As shown by Table (5-2), the more developed cost system helps the management to classify its costs into fixed and variable. This response was given by 87% of the sample which predominate all other opinions given.

We note that the costing system used in companies helps management to classify it's cost according to it's behavior as mentioned in the above paragraph which in turn helps the company in decision making process.

The response given by 83% in item No.5 is one refers to the company's ability to price its products accurately under the more developed costing system. This will helps the company to survive and compete in a dynamic environment. Disagreements represented no more than 7% which is very little and has no influence on the sample.

According to Table(5-2) above, we found that major part of the sample agrees that more developed costing system will be helpful to the company to accurately layout marketing strategy. So depending on costing system company will be able to identify the suitable marketing strategy and in turn enhance the competitive position of the company. This percentage was 67% comparing with 10% of disagreeing which is very little and have no effect.

Also we found that the percentage of agreement was 60%, indicating that a developed costing system enables the company to differentiate its products among competitor products, therefore, the company products will be recognized by costumers comparing to other competitors products which enhance the competitive position of the company. The disagreements percentage was 7% which is very little.

In the table above we found that about 90% of the sample strongly agrees with the opinion of costing system ability to provide the company with relevant information helpful to management to make a decision. We note that this percentage involves the majority of the sample and the remaining 3% were disagreeing answers.

We note that most respondents in this group refuse this item and they agree that the competitors will never get any benefits from the data derived from costing system. This is also sustained by real implication because the detailed data derived from costing system serve internal users only. The percentage 73% also indicates to the importance of such information to the company itself.

In the table above we found that where an accurate and actual costing system has developed and accuracy is increasing, the company's ability to seize and benefit from an opportunity and overcome the adverse effects facing the company will be increased. This response was represented by about 83% and 70%of the sample respectively, which means that the majority of the sample so believing. This is also approved by the answers related to item No.6 which suggests that the company will identify an appropriate marketing strategy which will enable the company to penetrate the market and achieve competitive advantage by utilizing the opportunities and avoid threats.

Also we found that the majority of the sample agrees to benefits of costing system in helping the company to identify the variances between the budgeted and actual results, and in the same time explain accurately the differences between budgeted and actual financial results. This is approved by percentage of 77% and 70% respectively.

57% of the sample agrees with the benefits of the costing system in providing the management with dependable information that enables the company to identify its competitors within the same industry. By identifying competitors the company will be able to enhance competitive advantage by many ways such as pricing, product differentiation, and distribution of branches on many regions where competitors do not exist.

We note that 44% of sample agreed with item No.15 depending on information created by costing system which enable the management to identify the style of the market. But this percent forming less than the half of the sample and not concentrated on one choice. So the management of company don't rely on the information derived from costing system in identifying types of the market.

In the above table we found that 57% of the sample agrees with the item that competition results in improving the company's performance, although that this percentage is not high enough but still indicates the benefits of competition, while agreement of less benefits was 30% and less meaning that there were no concentration on a certain option.

In the table above, the competition among companies results in establishing a qualified costing system that provide accurate and detailed information, this response is given by about 57% of the sample; adversely, agreement was 30%. These percentages represent no concentration on a certain choice.

In the table above we found that agreement is given by 50% of the sample as to considering competition factors just when identifying the costing system used in the company, while disagreements were no more than 10%. This is also approved by the answers on the open ended question, most of respondents mentioned that there is significant relationship between costing systems and competitive advantage and competition is considered when identifying costing system which will be used.

In the table above we found that 57% of the sample agrees with considering the competition factors when making investment decisions. But the opposite answers were only 26% which is effective although little.

In the table above these percent of 77% who agree with ability of the qualified costing system which helps the company in improving its performance and subsequently results in improving the competitive position, no disagreements appear in the sample.

We found that 70% of the sample agrees with the fact that the company differentiates itself by producing with costs less than their

competitors. Disagreements were no more than 10% which is little and not effective. This means that costing system accurately identifies production costs and help the company to compete on dynamic environment.

Results show 80% agreement with item that a qualified costing system enables the company to compare its production costs with competitors, which is helpful in improving the company's competitive advantage, whereas disagreements were no more than 3%.

The results show that the company can differentiate itself by producing quality products better rather than the others; this response represents about 45% comparing with disagreements of about 10% which is very little and has no effect.

In the table (5-2) the major part of respondents 66% agree with the item using qualified costing system enables the company to compare the quality of their products with that of others. So by using data derived from costing system the company will be able to create specific criteria to compare and differentiate it's product with that of others. This percentage represents the majority of the sample while disagreements are no more than 7%.

We found that 67% agree with ability of the used costing system to provide reports for internal users as needed. Disagreements are no more than 3% which is very little and has no influence. This issue is sustained by real implication because the data derived by costing system mainly serves the internal users.

Reponses to the item No. 26 represent about 50% of the sample are very strongly and strongly agree to the ability of costing system to provide reports to the external users as needed whereas no concentration was noticed on specific choice. The disagreements are about 30% which is to close to the agreements percentage regarding this item which deserves consideration. By these percentages we note that the ability of costing systems in serving external users very little comparing to the ability of costing systems in serving internal users.

The results show that 73% of the sample agrees that the good costing system can provide the management with actual and detailed reports just when a purchase offer is made. Disagreements are represented in the sample to a lesser extent. Also this is noticed by real implication and text books which implies that costing systems enable the companies to utilize the opportunities such as offers, tenders….etc, and enable them to specify their production cost accurately by identifying product costs which must be considered in decision making process.

About 80% of the sample agrees with the item No. 28 that a qualified costing system helps improving the interdepartmental co-ordination representing majority of the sample. this percentage asserts that costing system enables the companies to enhance the co-ordination among departments and in turn enhance the performance of the company as a whole and achieve the objectives of the company.

We found that 63% of the sample agrees that the existing costing system is able to find out substitute solutions for investment opportunities with the ability to revise and evaluate these opportunities. This percentage represents the majority of the sample while the disagreements are no more than 7%. We note that costing system in many companies has an ability to provide reports regarding the investments alternatives and in the same time enables them to pick up the most profitable one.

We note that about 44% of the sample disagrees with the item as to using a good costing system implies no benefits to be used as competitive advantage, this percentage indicates a little concentration on the given choices especially there is almost 33% of disagreements. This issue is asserted by the answers on the open ended question, all of them assert that there is a significant relationship between costing system and competition.

77% of the sample representing the majority indicates agreements with the accuracy of costing system which will be helpful to the company to identify its competitive position in the market, while there are no disagreements in the sample.

We note that 94% of the sample agrees that the costing system can generate more useful and detailed information. This percentage involves the majority of the sample while there are no disagreements exceed 3%.

In the table above, we found that about 80% of the sample strongly agree with that existence of good costing system would results in

improving the competitive advantage of the company, and in turn enhance the profitability of the company, while no disagreements appeared.

Also about 73% of the sample agree with using good costing system as it will help the company to control its overhead costs and thus help the company to improve its competitive position.

In the table above, the majority of the sample strongly agrees with considering the principle of cost–benefit when making choice of the appropriate costing system. This majority representing about 64% of the sample and disagreements are no more than 6% with no serious effect. We note that all companies consider the cost of any action intended to be done by the company, if the cost of this action exceeds the benefits which is expected, then this action will be canceled.

- **Mean and standard Deviation Analysis:**

In the following section data will be analyzed by using mean and standard deviation. Each hypothesis is tested and represented by using specific item in the questionnaire to test the relationship between variables, and in other hand, to support and approve or reject the hypothesis.

**First Hypothesis: There is a positive relationship between costing system and competitive advantage of a firm:**

**Table 5-3: First Hypothesis testing**

| No. | [illegible] | M | [illegible] | t-test value | [illegible] |
|---|---|---|---|---|---|
| [illegible] | **Depending on the information generated by costing system used in the company, the management can identify its competitors in the same industry.** | 3.6 | [illegible] | 2.71 | [illegible] |
| [illegible] | **Depending on the information generated by costing system used in the company, the management can identify the market style (monopoly, duopoly, or perfect competition).** | 3.37 | [illegible] | 1.26 | [illegible] |
| [illegible] | **Rarely you find that the competition among companies would result in improving the company's performance.** | 3.49 | [illegible] | 1.10 | [illegible] |
| [illegible] | **Rarely you find that the competition among companies results in establishing a costing system that generates accurate and detailed information.** | 3.33 | [illegible] | 0.93 | [illegible] |
| [illegible] | **The management considers the competition when identifying the relevant costing system which is or will be used.** | 3.47 | [illegible] | 2.63 | [illegible] |
| [illegible] | **The qualified costing system helps the company to improve its performance, and consequently results in improving the competitive position.** | 3.97 | [illegible] | 6.25 | [illegible] |
| [illegible] | **As using costing systems is not confined to a certain company, so these systems can not be used as a competitive advantage .** | 3.07 | [illegible] | 0.242 | [illegible] |
| [illegible] | **The more accurate the costing system, the greater ability of the company would be to identify its competitive position in the market.** | 3.87 | [illegible] | 10.36 | [illegible] |
| | [illegible] | 3.51 | [illegible] | 2.05 | [illegible] |

*(M=mean, SD=standard deviation * Statistically Significant at $\alpha \leq 0.05$)*

In the table above, results indicate that there is a positive relationship between costing system and the competitive advantage, which will reduce

costs of production and in the same time enables the company to produce high quality products, and in turn, the company will be able to compete with those companies of similar products or within same industry.

These results have been obtained from the answers to question (20) which had the highest mean (3.97) and may confirm the hypothesis, and in the same time had little standard deviation (.85). These responses indicate the benefits of the qualified costing system as helpful to management in improving its performance and thus would result in greater competitive advantage of the company.

The responses to questions (31) meet the second highest mean in the group with mean of (3.87) and with little standard deviation of (.46). These responses strongly agree with that qualified costing system results in enhancing competitive advantage of the company.

The responses to the question (30) have an adverse idea which indicates that the costing system can be used by all companies, so it will not be used as a competitive advantage. Such responses meet the lowest mean of (3.07) and standard deviation of (1.58). The rest of the responses nearly had the same mean.

We note from Table (5-3) that items 14, 18, 20, and 31 approve significantly alternative hypothesis ($H_1$) which mean that costing system affect positively on the competitive advantage of the firm and in the same time enable the company to identify it's competitive position on the market.

While the company can not used the information derived from costing system to identify the market style, this is sustained by P-value (0.109) to item No. 15.

Also it is noticed that negatively worded on item No. 17 improve that the competition enforce companies to use accurate and effective costing system, this is approved by P-value amounted to (0.181).

Finally even costing system not confined to a certain company, but it used as competitive advantage by companies, this is approved by the P-value amounted to (0.405).

In general the alternative hypothesis (H1) has been confirmed at the weighted average of mean amounted to (3.51) against medium standard deviation of (1.36), and P-value amounted to (0.024) which means that there is positive relationship between costing systems and competitive advantage.

**Second Hypothesis: Using modern and sophisticated costing system will enhance competitive advantage of the company in terms of price, marketing or distributive, and product competition:**

**Table 5-4: Second Hypothesis Testing.**

| No. | | M | t-test value |
|---|---|---|---|
| | The more developed costing systems, the more accurately a company will price its products. | 4.37 | 5.86 |
| | The more developed costing systems, the more company's ability to layout efficient marketing strategy. | 3.9? | 3.74? |
| | The more developed costing systems, the more company's ability to recognize its products among the competitors. | 3.77 | 3.101? |
| | Your company usually differentiate itself with production costs being less than it's competitors. | 2.07 | 4.52 |
| | using better costing system enables the management to compare its production costs with others in the market is helpful in improving its competitive advantage . | 4.03 | 5.48 |
| | your company differentiates itself by improving its products quality comparing with the similar products in the market. | 2.03 | 4.64 |
| | Using better costing system enable the management to compare quality of the company's products with products in the same market which is helpful in improving competitive advantage. | 3.93 | 3.51 |
| | | 3.44 | 1.84 |

*(M=mean, SD=standard deviation * Statistically Significant at $\alpha \leq 0.05$ )*

In the table above, the results show that using an accurate and qualified costing system will increase the competitive ability in terms of price, marketing or distributive, and product competition.

These results have been agreed with by responses to question (5) which meets the highest mean in the group amounted to (4.37), and has got medium variance amounted to (1.28). Such answers indicate that the qualified costing system results in an increased ability of management to

price its products and achieve competitive advantage with no effect on the quality.

Also, the answers to question (22) meet the second highest mean in the group against variance of (1.03). these responses indicate that under a qualified costing system the company will be able to compare its cost of production with others in the same industry, and in turn, enhances the company competitive position.

But the answers on question (23) which meet the lowest mean may prove this hypothesis amounting (2.03) and meet medium variance of (1.17). These responses indicate that there is another approach other than costing system, which differentiates the company products such as improving the quality of the product to a level higher than similar products.

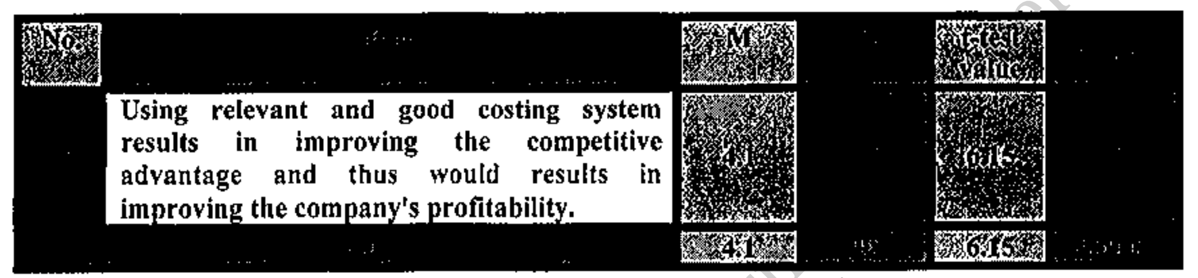
Also we conclude from responses to question (21) meet the mean amounted to (2.07) and against medium variance amounted to (1.18). Such responses indicate that the company can compete with similar companies in terms of price, marketing or distribution, or quality by using modern and sophisticated costing systems.

Also by using P-values mentioned on Table (5-4), it is noticed that all of these values are less than α, which means that developed costing system enhance the firm competitive advantage in terms of pricing, marketing or distributive, and product competition.

In general hypothesis ($H_2$) has been approved at mean of (3,44) and standard deviation of (1.28). Also it is approved by P –value of (0.038).

**Third Hypothesis: Using modern and sophisticated costing system will enhance the profitability of the company.**

**Table 5-5: Third Hypothesis Testing**



| No. | | M | | t-test value | |
|---|---|---|---|---|---|
| | Using relevant and good costing system results in improving the competitive advantage and thus would results in improving the company's profitability. | 4.1 | | 6.15 | |
| | | 4.1 | | 6.15 | |

*(M=mean, SD=standard deviation * Statistically Significant at $\alpha \leq 0.05$ )*

In the table above we found that the modern and sophisticated costing system results in improving the competitive advantage of company to achieve a higher level of profitability.

This idea has been agreed with by the responses to question (33) which indicate clearly to the credibility of this statement and also applicability.

These responses had very high mean of (4.1), variance of (.98), and P-value of (0.0005) which means that alternative hypothesis ($H_3$) has been approved.

**Fourth Hypothesis: Using modern costing system enables the company to classify its costs accurately**

**Table 5-6: fourth Hypothesis Testing**

| No. | | M | [illegible] | t-test value | [illegible] |
|---|---|---|---|---|---|
| [illegible] | The more developed costing systems, the more company's ability will be to classify costs into avoidable or unavoidable. | 4.31 | [illegible] | 6.69 | [illegible] |
| [illegible] | The more developed costing systems, the more company's ability will be to classify its costs into direct or indirect. | 4.3 | [illegible] | 6.72 | [illegible] |
| [illegible] | The more developed costing systems, the more company's ability will be to classify its costs into fixed or variable. | 4.23 | [illegible] | 7.57 | [illegible] |
| [illegible] | Using good and accurate costing system helps the company to control overhead costs and thus helps the company improve the competitive position. | 4 | [illegible] | 5.17 | [illegible] |
| | [illegible] | 4.2[illegible] | [illegible] | 6.49[illegible] | [illegible] |

*(M=mean, SD=standard deviation * Statistically Significant at $\alpha \leq 0.05$)*

We found that the qualified costing system helps the management to classify its cost accurately according to the behavior of these costs. This item was agreed with by a number of responses to questions (2) (3) and (4), all of which meet very high mean of (4.31), (4.3) and (4.23) respectively, also such responses had very low standard deviation.

From responses to question (34), we found that the mean of this question is (4) and the standard deviation was (1.06), these responses strongly support the fourth hypothesis because it imply that the modern costing system has an ability to control overhead costs, and in turn, enhance the competitive advantage.

We note that all P-values to items 2, 3, 4, and 34 are statistically significant amounted to (0.0005) for each one. This means that modern costing systems enables the company to classify it's costs accurately.

In general, we note that all response groups had high mean which strongly confirms the alternative hypothesis (H4) at a total mean (4.2), variance of (1.013), and P-value (0.0005).

**Fifth Hypothesis: The use of financial information derived from costing system helps identifying market opportunities and threats, and in turn enhance the competitive advantage.**

**Table 5-7: Fifth Hypothesis Testing**

| No |  | M |  | t-test value |  |
|---|---|---|---|---|---|
|  | The more accurate costing system, the more able will be the company to identify the opportunities and make progress. | 4.1 |  | 7.17 |  |
|  | the more accurate the costing system, the more company's ability to identify the threats which will adversely affect the company performance. | 3.87 |  | 3.87 |  |
|  | The management would rarely consider the competition when making investment decisions. | 3.37 |  | 1.36 |  |
|  | The good costing system has an ability to provide the management with actual and detailed reports when purchasing offers are submitted to your company. | 4.03 |  | 5.04 |  |
|  | the costing system used in the company can provide the management with substitute solution for investment opportunities, revising and evaluating these solutions to contribute in improving the competitive advantage. | 3.67 |  | 3.86 |  |
|  |  | 3.81 |  | 3.52 |  |

*(M=mean, SD=standard deviation * Statistically Significant at $\alpha \leq 0.05$)*

We note from the above responses that the financial information created by relevant costing system help identifying the opportunities and threats that may face the company.

The responses of question (10) and (11) were (4.1) and (3.87), and had standard deviation of (.89) and (1.23) respectively, strongly agreed with the fifth hypothesis that provides that the information derived from costing

system enable the company to identify the opportunities in the market and utilizes it, and in the same time avoid the threats.

Question (29) and (27) confirms the fifth hypothesis with mean (3.67) and (4.03) and standard deviation of (.95) and (1.12) respectively. Question (29) implies that the costing system can provide management with relevant data regarding the available investment alternatives, and in the same time revise and evaluate these alternatives which contribute to improving the competitive advantage; this is also approved by questions (27) which implies that the costing system effective in providing relevant information when there is offers regarding purchasing particular products of the company at a special price.

Adversely, question (19) indicates the text of the question and assured that the company takes in consideration competition factors when making investment decision, this answer faced with mean amounted (3.37) and standard deviation of (1.49).

By P- values amounted to (0.0005) to Items No. 10, 11, and 27 and (0.0003) to item No. 29, it is noticed that the companies can use financial information derived by costing systems in determining and utilizing the opportunities and identifying the events which may adversely affect on the company. Also this is approved by the P- value to item No. 19 amounted to (0.019) which is negatively worded.

Alternative hypothesis ($H_5$) has been confirmed at level of a total mean (3.81) against standard deviation of (1.126) and P- value amounted to (0.0007)

**Sixth Hypothesis: Accurate and modern costing system enables the company to provide financial information which satisfies the user needs.**

**Table 5-8: Sixth Hypothesis Testing.**

| No. | | M | t-test value |
|---|---|---|---|
| | within the used costing systems, we can easily customize reports to the specification of use. | 4.67 | 6.37 |
| | The more available relevant information, the more costing system ability to provide data helpful in the decision making process. | 4.47 | 8.6 |
| | if accurate and actual information were generated by the company's costing system, the competitors will get more benefits from this information and so will get a competitive advantage | 3.67 | 2.414 |
| | The costing system used in your company can provide the reports to company internal users as needed. | 3.77 | 2.39 |
| | The used costing system in the company provides reports for its external users as needed. | 3.33 | 1.03 |
| | The good costing system helps the company to improve interdepartmental co-ordination throughout the company in commensurate with common interest of the company | 3.97 | 4.96 |
| | Accounting information will be more useful and relevant if it is generated by a qualified costing system providing information in more detail. | 4.50 | 9 |
| | | 4.05 | 5.66 |

*(M=mean, SD=standard deviation * Statistically Significant at $\alpha \leq 0.05$ )*

We found that the company provides credible financial information by using modern costing system. By analyzing the responses to question (1), (25), and (26) we note that modern costing system able to provide information according to specification of use, this is guaranteed by the highest mean of (4.67) and the lowest standard deviation of (.92), and in

the same time the costing system able to provide financial information relevant to both internal and external users, this item was supported by the mean of 3.93.

Responses to question (8) confirmed the sixth hypothesis by mean of (4.47) and standard deviation of (.97), meaning that the costing system has an ability to provide relevant information which in turn assists the management in the decision making.

The respondent responses to item (32) depict that the more detailed information provided by qualified costing system will be relevant in decision making, this idea recognized by high mean of (4.5) and lower standard deviation of (.73).

From responses regarding the possibility of utilizing accurate information derived from accurate costing system by the competitors, as mentioned on question (9), we found that, to some extent, the competitors may utilize these accurate information, and in turn, affect the competitive position of the company, assertion came from the mean (3.67) and standard deviation (1.52) which is considered relatively high.

Accurate costing system sustains the cooperation and co-ordination between departments and branches of the company according to the common interest of the company, this idea is expressed by the responses to question (28) with mean of (3.97) and standard deviation (1.07).

By using P–values to items 1, 8, 9, 25, 28, and 32, it is noticed that the company can use costing system to satisfy external users needs, but by P-value amounted to (0,156) related to item No.26 it is noticed that the data derived from costing system quietly serve external users, this is also sustained by the percentage analysis for this item.

In general, alternative hypothesis ($H_6$) has been confirmed at total mean level of (4.05) and standard deviation of (1.129), also it significantly approved at P-value amounted to (0.0005)

**Seventh Hypothesis: Accurate and modern costing system enables the company to provide financial information which satisfies the user' needs.**

**Table 5-9: Seventh Hypothesis Testing.**

| No | [illegible] | M | [illegible] | t-test value | [illegible] |
|---|---|---|---|---|---|
| [illegible] | The costing system in use has an ability to identify the difference between budgeted financial results and actual financial results. | [illegible] | [illegible] | 4.42 | [illegible] |
| [illegible] | The costing system used in the company can explain the differences between the budgeted and the actual financial results. | 3.93 | [illegible] | 4.21 | [illegible] |
| | [illegible] | 3.97 | [illegible] | 4.32 | [illegible] |

*(M=mean, SD=standard deviation * Statistically Significant at $\alpha \leq 0.05$ )*

The results show that the accurate costing system enables the company to plan and prepare budgets and help in evaluating general company's performance.

These results are agreed with by responses to question (12) which had the highest mean in the group amounted to (4) and against medium standard deviation of (1.24), this indicate that the company can use the

information conducted from costing system to identify the differences between budgeted financial results and actual results.

The respondents to question (13) imply that costing system enable the company to explain the differences between budgeted and actual financial results by having a mean of (3.93) and standard deviation of (1.21).

Depending on responses to questions (12) and (13), we note that P-values amounted to (0.0005) and (0.0001) respectively improve the alternative hypothesis ($H_7$). Also mean of (3.97) and standard deviation of (1.23) improve this hypothesis.

**Eight Hypothesis: The choice of costing system is based on the application of Cost – Benefits analysis.**

**Table 5-10: Eight Hypothesis Testing.**

| No. | | M | | t-test value | |
|---|---|---|---|---|---|
| | Typically, your company considers the benefits–cost relationship when choosing its own costing system. | 3.83 | | 3.27 | |
| | | 3.83 | | 3.27 | |

*(M=mean, SD=standard deviation * Statistically Significant at $\alpha \leq 0.05$ )*

When designing a costing system the company must take into consideration cost – benefit principle, this principle helps the management to decide whether costing system which has been chosen is effective and efficient in providing relevant information or not, comparing to the cost incurred by company to acquire this system.

By considering the answers related to question (35) we found that many companies consider the relationship between cost and benefit when

designing their costing system, costing system with very high costs and relatively little benefit will be rejected by companies.

Generally, the alternative hypothesis ($H_8$) has been sustained by practical implementation and in the same time had mean (3.83) against standard deviation of (1.4) and P-value amounted to (0.0005).

- **One Sample t-test:**

As mentioned on each Table from 5-2 till to Table 5-10, one sample t-test, and P value are calculated in order to accept or reject the alternative hypotheses, significance of the relationship between variables has also been calculated

The following table will summaries the hypothesis testing by using mean and one sample t-test:

**Table (5-11): Summary of Hypotheses' Testing**

| Hypotheses | Mean | One sample t-test | Significance | Accept or Reject |
|---|---|---|---|---|
| H1: There is a positive relationship between costing system competitive advantage of a firm. | 3.51 | 2.05 | 0.024 | Accept |
| H2: Using modern and sophisticated costing system will enhance competitive advantage of the company in terms of price, marketing or distributive, and product competition. | 3.44 | 1.84 | 0.038 | Accept |
| H3: Using modern and sophisticated costing system will enhance the profitability of the company. | 4.1 | 6.15 | 0.0005 | Accept |
| H4: Using modern costing system enables the company to classify its costs accurately | 4.2 | 6.49 | 0.0005 | Accept |
| H5: The use of financial information derived from costing system helps identifying market opportunities and threats, and in turn enhance the competitive advantage. | 3.81 | 3.52 | 0.0007 | Accept |

| Hypotheses | Mean | One sample t-test | Significance | Accept or Reject |
|---|---|---|---|---|
| **H6: Accurate and modern costing system enables the company to provide financial information which satisfies the user needs.** | **4.05** | **3.66** | **0.0005** | **Accept** |
| **H7: Accurate and modern costing system enables the company to provide financial information which satisfies the user' needs.** | **3.97** | **4.32** | **0.0005** | **Accept** |
| **H8: The choice of costing system is based on the application of Cost – Benefits analysis.** | **3.83** | **3.27** | **0.001** | **Accept** |

From the above table we note that the first hypothesis are approved by using both statistical analysis tools, mean and t-test (P value) which amounted to (3.51) and 2.05(0.024) respectively, which mean that there is a significant relationship between costing system and competitive advantage of the companies.

Other studies approved that there is a positive association between costing systems and competitive advantage. Findings of a study prepared by Kanadwalla (1972) approved that there is a positive relationship between competition and sophisticated management controls tools.

Cardinaels, et al. (2004) suggested that the ABC dose not always result into a competitive advantage for price sitting.

While Adler, et al. (2000) suggested that the use of advanced management accounting techniques may provide firms with an opportunity to realize a competitive advantage. Study conducted by Libby and Waterhouse (1996) implied that there was moderate support for prediction

that more intensity competitive environment would lead to a large number of MACS.

The results of Table (5-11) regarding the second hypothesis showed that the use of sophisticated costing system will significantly enhance the competitive advantage of the company under different types of marketing strategies, this relationship sustained by the mean amounted to (3.43) and t-test and P value were (1.84) and (0.038) respectively.

the results of this sudy are consistent with previous studies regarding the second hypothesis (Kanadwalla (1972); Kreshnan, et al. (2002); Callahan and Gabriel (1998)), also showed the more accurate costing system may affect the competitive advantage under different types of marketing strategies.

the results regarding the third hypothesis suggest that there is association between modern and sophisticated costing system and enhancing the profitability of the company. This is consistent with the results of Ambe and Sartorious (2002), which suggested that there is a positive correlation between competition and management accounting system, and net profit of organization.

The results suggests that modern costing system significantly lead to classify cost according to its' behavior accurately. Previous studies such as Pizzini (2006) suggested that the accurate costing systems will lead to better classification of cost which is associated with higher managerial evaluation of data relevance and use.

As mentioned on Table (5-11), the company can significantly utilize the information derived by costing system in identifying the market opportunities and threats.

The results also suggest that the accurate costing systems can significantly provide relevant information to external and internal users, and in the same time costing systems help the company in preparing budgets and evaluate and compare the actual performance with budgeted performance.

Finally the cost – benefit analysis is significantly considered when companies planned to install costing system.

- **Mann Whitney U Test:**

Data was tested for normality using Kolmin grove Simirnove test, these tests showed that the assumption of normality is violated, therefore, Mann Whitney U test was used to compare between the group 1 and group 2. First 15 observations formed group 1 and the last 15 observations formed group 2 as expressed in the following table:

**Table (5-12) Mann Whitney U Test for Normality**

| Hypothesis | Group (1) Mean (SD) | Group (2) Mean (SD) | P- Value | Accept or Reject |
|---|---|---|---|---|
| 1st Hypothesis | 3.49 (1.40) | 3.53 (1.38) | 0.072 | Accept |
| 2nd Hypothesis | 3.40 (1.31) | 3.46 (1.29) | 0.066 | Accept |
| 3rd Hypothesis | 4.40 (1.10) | 3.80 (0.99) | 0.078 | Accept |

| Hypothesis | Group (1) Mean (SD) | Group (2) Mean (SD) | P- Value | Accept or Reject |
|---|---|---|---|---|
| 4th Hypothesis | 4.20 (1.30) | 4.20 (1.29) | 1.000 | Accept |
| 5th Hypothesis | 3.80 (1.28) | 3.82 (1.28) | 0.081 | Accept |
| 6th Hypothesis | 3.94 (1.40) | 3.92 (1.40) | 0.102 | Accept |
| 7th Hypothesis | 3.98 (1.25) | 3.96 (1.26) | 0.112 | Accept |
| 8th Hypothesis | 3.80 (1.42) | 3.86 (1.47) | 0.065 | Accept |

We note from the Table (5-12) that all Mann-Whitney tests showed that there is no significant differences between group 1 and group 2 for all hypotheses, and in turn, there is no time effect.

# Chapter Six

## Conclusions and Recommendations

6.1 Summary And Conclusion

6.2 Recommendation

## 6.1 Summary and Conclusions

This study investigates the effect of costing systems on the competitive advantage of Jordanian industrial firms, this study targeted industrial firms listed in Amman Stock Exchange(ASE) in the first market as on 31/12/2006. Furthermore, this study examines the effect of costing system in many another variables which may be affected by costing system and have significant influence on competitive advantage and profitability of the firm.

In this study, the researcher used statistical analysis such as mean, standard deviation, frequency, and percentage analysis. These instruments are widely used in measuring and testing data gathered by questionnaire.

This study based on the hypothesis of whether the costing system affect competitive advantage and profitability of the firm.

By using open-ended question on the questionnaire regarding the respondent opinion of relationship between costing system and competitive advantage, all of them emphasized that there is a significant relationship between costing system and competitive advantage of the company.

After analyzing data which have been gathered from the respondents of questionnaire, the results of this study have been as follows:

1) It is noticed that there is a positive relationship between costing system and competitive advantage of Jordanian industrial firm.

2) It is noticed that developed and accurate costing system enables the company to differentiate it self in terms of quality and price of it's products.

3) The results indicated that the ability of the company to classify its' cost more accurately depending heavily on the type of costing system used.

4) The researcher found that the type of costing system used in the company affect on the profitability of the company positively.

5) The results indicated that cost – benefit principle are considered when determining the type of costing system which will be used.

6) The results asserted that the financial information derived from developed and accurate costing system are more reliable by the users of these information.

7) The results showed that the developed and accurate costing system helps the company to identify investment opportunities and threats which will adversely affect the company's performance more precisely.

## 6.2 Recommendations:

- it is necessary to choose costing system equivalent to production process more carefully.
- It is recommended to use accurate and developed costing system in the company to be able to price its product more accurately.

- Accurate and developed costing system is recommended in order to identify the cost of production more accurately ,and in turn, enable the company to sustain the quality of its product.
- It is necessary to make sure that the costing system used, or which will be used is effective.

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# Appendix (A)

**Yarmouk University**
**Faculty of Economics & Administration Sciences**
**Accounting Department**

Dear Mr./Mrs./ Miss,,,

Attached to this letter questionnaire related to a master's degree thesis titled:

***(The Effect of Costing systems on the competitive advantage of Jordanian Industrial Firms "an Empirical Study")***

The study aims to investigate the effect of costing systems on the competitive advantage of Jordanian industrial firms regarding the ability of costing systems to provide relevant information enable the company to survive in a dynamic environment, from the perspective of; chief executives officers and/or chief financial officers.

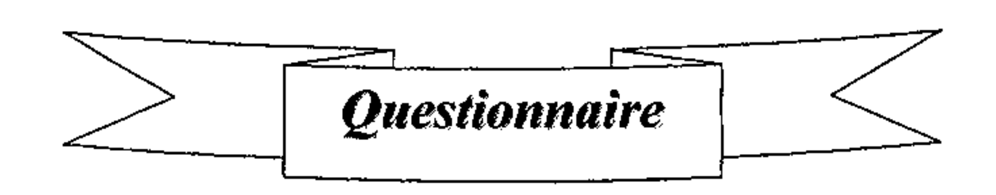
While your appreciable contribution is very important to conduct this study, kindly, we ask for few minutes of your time to fill the questionnaire consistently with your respectful opinion.

Your answers will be treated with confidentiality, and will not be used for any purpose other than for scientific research.

Best Regards,,,

**Supervisor**
**Dr. Mahmoud Qaqish**

**Researcher**
**Ahmad I. Abu-Dawleh**
*ahabudouleh@yahoo.com*
**+962 777 597 580**




**Please insert (✓) in the specified blank:**

**First: General Information**

| | |
|---|---|
| **Profession** | ☐Chief Executives Officers (CEO's)<br>☐Chief Financial Officers (CFO's) |
| **Gender** | ☐Male ☐Female |
| **Age** | ☐Less than25 years ☐25-less than30 ☐30-less than40<br>☐40-less than50 ☐50-less than60 ☐60years or more |
| **Education** | ☐Bachelor ☐High Diploma ☐Master<br>☐PhD ☐Other …. |
| **Academic Major** | ☐Accounting ☐Finance ☐Business Adm. ☐Other …. |
| **Practical Experience** | ☐Less than 6years ☐6-less than10 ☐10-less than15<br>☐15-less than20 ☐20-less than25 ☐25-less than30<br>☐30 years or more |
| **Professional Certificate** | ☐CPA ☐CMA ☐JCPA ☐Other …. |

**Note: Kindly answer the following question according to current conditions in your company.**

***[VSA: Very Strongly Agree, SA: Strongly Agree, A: Agree, DA: Disagree, and SDA: Strongly Disagree]***

**Second: Information related to the dimensions of the study**

| No. | Item | VSA | SA | A | DA | SDA |
|---|---|---|---|---|---|---|
| 1 | within the used costing systems, we can easily customize reports to the specification of use. | | | | | |
| 2 | The more developed costing systems, the more company's ability will be to classify costs into avoidable or unavoidable. | | | | | |
| 3 | The more developed costing systems, the more company's ability will be to classify its costs into direct or indirect. | | | | | |
| 4 | The more developed costing systems, the more company's ability will be to classify its costs into fixed or variable. | | | | | |
| 5 | The more developed costing systems, the more accurately a company will price its products. | | | | | |
| 6 | The more developed costing systems, the more company's ability to layout efficient marketing strategy. | | | | | |
| 7 | The more developed costing systems, the more company's ability to recognize its products among the competitors. | | | | | |
| 8 | The more available relevant information, the more costing system ability to provide data helpful in the decision making process. | | | | | |
| 9 | if accurate and actual information were generated by the company's costing system, the competitors will get more benefits from this information and so will get a competitive advantage. | | | | | |
| 10 | The more accurate costing system, the more able will be the company to identify the opportunities and make progress. | | | | | |
| 11 | the more accurate the costing system, the more company's ability to identify the threats which will adversely affect the company performance. | | | | | |
| 12 | The costing system in use has an ability to identify the difference between budgeted financial results and actual financial results. | | | | | |
| 13 | The costing system used in the company can explain the differences between the budgeted and the actual financial results. | | | | | |
| 14 | Depending on the information generated by costing system used in the company, the management can identify its competitors in the same industry. | | | | | |
| 15 | Depending on the information generated by costing system used in the company, the management can identify the market style (monopoly, duopoly, or perfect competition). | | | | | |
| 16 | Rarely you find that the competition among companies would result in improving the company's performance. | | | | | |
| 17 | Rarely you find that the competition among companies results in establishing a costing system that generates accurate and detailed information. | | | | | |
| 18 | The management considers the competition when identifying the relevant costing system which is or will be used. | | | | | |

| No. | Item | VSA | SA | A | DA | SDA |
|---|---|---|---|---|---|---|
| 19 | The management would rarely consider the competition when making investment decisions. | | | | | |
| 20 | The qualified costing system helps the company to improve its performance, and consequently results in improving the competitive position. | | | | | |
| 21 | Your company usually differentiate itself with production costs being less than it's competitors. | | | | | |
| 22 | using better costing system enables the management to compare its production costs with others in the market is helpful in improving its competitive advantage. | | | | | |
| 23 | your company differentiates itself by improving its products quality comparing with the similar products in the market. | | | | | |
| 24 | Using better costing system enable the management to compare quality of the company's products with products in the same market which is helpful in improving competitive advantage . | | | | | |
| 25 | The costing system used in your company can provide the reports to company internal users as needed. | | | | | |
| 26 | The used costing system in the company provides reports for its external users as needed. | | | | | |
| 27 | The good costing system has an ability to provide the management with actual and detailed reports when purchasing offers are submitted to your company. | | | | | |
| 28 | The good costing system helps the company to improve interdepartmental co-ordination throughout the company in commensurate with common interest of the company. | | | | | |
| 29 | the costing system used in the company can provide the management with substitute solution for investment opportunities, revising and evaluating these solutions to contribute in improving the competitive advantage. | | | | | |
| 30 | As using costing systems is not confined to a certain company, so these systems can not be used as a competitive advantage . | | | | | |
| 31 | The more accurate the costing system, the greater ability of the company would be to identify its competitive position in the market. | | | | | |
| 32 | Accounting information will be more useful and relevant if it is generated by a qualified costing system providing information in more detail. | | | | | |
| 33 | Using relevant and good costing system results in improving the competitive advantage and thus would results in improving the company's profitability. | | | | | |
| 34 | Using good and accurate costing system helps the company to control overhead costs and thus helps the company improve the competitive position. | | | | | |
| 35 | Typically, your company considers the benefits–cost relationship when choosing its own costing system. | | | | | |

**Q: Kindly How Did You See the Relationship Between Costing System and Competitive Advantage?**



***End of the questions,,, Thank you for cooperation***

***For further information please contact:***

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*+962 777 597 580*

جامعة اليرمــــــــــــوك
كلية الاقتصاد والعلوم الإدارية
قسم المحاسبـــــــــــة

السيد المدير المحترم

تحية طيبة وبعد:

تجدون ملحقاً بهذه الرسالة استبانه خاصة بإعدادِ رسالةِ ماجستيرِ بعنوان

**(*The Effect of Costing Systems on the Competitive Advantage of Jordanian Industrial Firms: An Empirical Study*)**

**(أثر نظم التكاليف على الميزة التنافسية للشركات الصناعية الأردنية: دراسة ميدانية)**

تهدفُ هذه الدراسةُ لبحثِ أثر نظم التكاليف على الميزة التنافسية للشركات الصناعية الأردنيـــة فيمـــا يتعلق بقدرتها على تزويد معلومات ملائمة تمكن الشركات الصناعية من الاستمرار والبقاء في بيئة متغيرة مـــن وجهة نظر المدير، والمدير المالي.

و لمّا كانت مساهمتكم ذات أهمية كبيرة في إتمام هذه الدراسة، نرجوا أن تتكرموا حضرتكم بالاجابـــة على بنود الاستبانة بما يتوافق و رأيكم الكريم، علماً بأنه سيتم التعامل مع إجاباتكُم بـــسريَّة وخـــصوصيَّة ولـــن تُستخدمَ إلا لأغراض البحثِ العلمي فقط، شاكرين لكم تعاونكم في هذا المجال.

و تفضلوا بقبول فائق التقدير والاحترام،،،

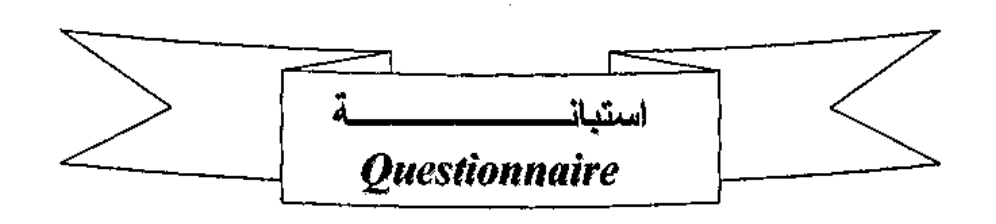
**المُشرف**
**د. محمود قاقيش**

**الباحث**

**أحمد إبراهيم محمد أبو دوله**

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**+962 777 597 580**




**يُرجى وضع اشارة ( ✓ ) في المكان المُخصَّص لذلك:**

**اولاً: المعلومات العامة**

| الخاصيـــــة | توزيع الخاصيـــــــــــة | | | |
|---|---|---|---|---|
| المهنة | ☐ مدير | ☐ مدير مالي | | |
| الجنس | ☐ذكر | ☐ أنثى | | |
| العمر | ☐اقل من٢٥ سنة | ☐٢٥- اقل من ٣٠ | ☐٣٠- اقل من ٤٠ | |
| | ☐٤٠ - اقل من ٥٠ | ☐٥٠- اقل من ٦٠ | ☐٦٠ سنة فاكثر | |
| المؤهل العلمي | ☐بكالوريوس | ☐دبلوم عالي | ☐ماجستير | |
| | ☐دكتوراة | ☐أخرى.......... | | |
| التخصص | ☐محاسبة | ☐علوم مالية ومصرفية | ☐إدارة أعمال | ☐أخرى.......... |
| الخبرة العملية | ☐اقل من ٦ سنوات | ☐٦- اقل من ١٠ | ☐١٠ - اقل من١٥ | ☐١٥- اقل من ٢٠ |
| | ☐٢٠ - اقل من٢٥ | ☐٢٥- اقل من ٣٠ | ☐ ٣٠سنة فاكثر | |
| الشهادات المهنية | ☐CPA | ☐CMA | ☐JCPA | ☐أخرى.......... |

**ملاحظة: يرجى الإجابة على الأسئلة التالية حسب الوضع الحالي للشركة التي تعمل بها حالياً.**

**ثانياً: المعلومات الخاصة بأبعاد الدراسة.**

| ت | الفقـــــــــرة | [illegible] | موافق بدرجة كبيرة | موافق بدرجة متوسطة | غير موافق | [illegible] |
|---|---|---|---|---|---|---|
| ١ | من خلال نظام التكاليف المستخدم في الشركة يمكننا وبسهولة تحويل التقارير المستخرجة منه كلاً حسب الحاجة المرجوة منه. | | | | | |
| ٢ | كلما كان نظام التكاليف المستخدم في الشركة أكثر تطوراً، فان قدرة الشركة على تصنيف التكاليف إلى تكاليف يمكن أو لا يمكن تجنبها سوف تزداد. | | | | | |
| ٣ | كلما كان نظام التكاليف المستخدم في الشركة أكثر تطوراً، فان قدرة الشركة على تصنيف التكاليف إلى تكاليف مباشرة أو غير مباشرة سوف تزداد. | | | | | |
| ٤ | كلما كان نظام التكاليف المستخدم في الشركة أكثر تطوراً، فان قدرة الشركة على تصنيف التكاليف إلى تكاليف متغيرة أو ثابتة سوف تزداد. | | | | | |
| ٥ | كلما كان نظام التكاليف المستخدم في الشركة أكثر تطوراً، فان قدرة الشركة على وضع أسعار لمنتجاتها بشكل أدق سوف تزداد. | | | | | |
| ٦ | كلما كان نظام التكاليف المستخدم في الشركة أكثر تطوراً، فان قدرة الشركة على وضع استراتيجيات تسويقية جيدة سوف يزداد. | | | | | |
| ٧ | كلما كان نظام التكاليف المستخدم في الشركة أكثر تطوراً، فان قدرة الشركة على تمييز منتجاتها عن المنتجات الأخرى للمنافسين سوف يزداد. | | | | | |
| ٨ | كلما كان هنالك معلومات ملائمة متوفرة أكثر، فان قدرة نظام التكاليف المستخدم في الشركة على تزويد الإدارة بالمعلومات سيساعدها في عملية اتخاذ القرار بشكل أسرع وأدق. | | | | | |
| ٩ | وجود معلومات دقيقة و حقيقية من نظام التكاليف المستخدم في الشركة سوف يؤدي إلى استفادة المنافسين من هذه المعلومات مما يؤثر سلباً على الشركة. | | | | | |
| ١٠ | كلما زادت دقة نظام التكاليف المستخدم في الشركة، فان قدرة الشركة على تحديد الفرص والاستفادة منها سوف تزداد. | | | | | |
| ١١ | كلما زادت دقة نظام التكاليف المستخدم في الشركة، فان قدرة الشركة على تجنب التهديدات التي تؤثر سلباً على الشركة سوف تزداد. | | | | | |
| ١٢ | نظام التكاليف المستخدم في الشركة له القدرة على تحديد الفروقات ما بين النتائج المالية المتوقعة والنتائج المالية الفعلية. | | | | | |
| ١٣ | نظام التكاليف المستخدم في الشركة له القدرة على تفسير التفاوت ما بين النتائج المالية المتوقعة والنتائج المالية الفعلية. | | | | | |
| ١٤ | بالاعتماد على المعلومات المستخرجة من نظام التكاليف المستخدم في الشركة، فانه من الممكن أن تتمكن الإدارة من تحديد منافسيها ضمن القطاع الواحد. | | | | | |
| ١٥ | بالاعتماد على المعلومات المستخرجة من نظام التكاليف المستخدم في الشركة، فانه من الممكن أن تتمكن الإدارة من تحديد نوع السوق الذي توجد فيه، سواء كان هذا السوق (احتكار، شبه احتكار، منافسة تامة). | | | | | |
| ١٦ | نادراً ما تؤدي المنافسة ما بين الشركات إلى تحسين أداء الشركات إيجابياً. | | | | | |
| ١٧ | نادراً ما تؤدي المنافسة بين الشركات الصناعية إلى وضع نظام تكاليف قادر على إعطاء معلومات دقيقة وتفصيلية. | | | | | |

| ت | الفقــــــــرة | موافق بدرجة كبيرة جداً | موافق بدرجة كبيرة | موافق بدرجة متوسطة | غير موافق | غير موافق إطلاقاً |
|---|---|---|---|---|---|---|
| ١٨ | عادةً ما تأخذ الإدارة في الشركة بعين الاعتبار المنافسة عند تحديد نظام التكاليف المستخدم أو الذي سوف يتم استخدامه. | | | | | |
| ١٩ | نادراً ما تقوم الإدارة في الشركة بالأخذ بعين الاعتبار المنافسة عند القيام بإتخاذ القرارات الاستثمارية. | | | | | |
| ٢٠ | نظام التكاليف الجيد والفعال يساعد الشركة في تحسين أدائها وبالتالي فانه يؤدي إلى تحسين الميزة التنافسية للشركة. | | | | | |
| ٢١ | عادةً ما تقوم شركتك بتمييز نفسها عن طريق الإنتاج بتكلفة اقل مقارنة مع منافسيها. | | | | | |
| ٢٢ | استخدام نظام تكاليف جيد من قبل شركتك يُمكن الإدارة من مقارنة تكلفة الإنتاج لمنتجاتها مع المنتجات المشابهة لها في السوق مما يساعد على تحسين الميزة التنافسية. | | | | | |
| ٢٣ | تقوم شركتك بتمييز نفسها عن طريق تحسين جودة منتجاتها عن المنتجات المشابهة لها في السوق. | | | | | |
| ٢٤ | استخدام نظام تكاليف جيد يُمكن الإدارة في شركتك من مقارنة جودة منتجاتها مع جودة المنتجات المشابهة لها في السوق مما يساعد على تحسين الميزة التنافسية. | | | | | |
| ٢٥ | نظام التكاليف المستخدم في الشركة له القدرة على تزويد التقارير لمستخدميها من داخل الشركة و بحسب حاجتهم إليها. | | | | | |
| ٢٦ | نظام التكاليف المستخدم في الشركة له القدرة على تزويد التقارير لمستخدميها من خارج الشركة و بحسب حاجتهم إليها. | | | | | |
| ٢٧ | نظام التكاليف الجيد له القدرة على تزويد الإدارة بتقارير مفصلة وحقيقية عندما يكون هنالك فرص (عروض) مقدمة لشراء منتجات من شركتك. | | | | | |
| ٢٨ | إن نظام التكاليف الجيد يساعد الشركة على تحسين التنسيق بين الأقسام والفروع داخل الشركة بما يتماشى والمصلحة العامة للشركة. | | | | | |
| ٢٩ | يمكن أن يقدم نظام التكاليف المستخدم في الشركة حلول بديلة للفرص الاستثمارية ومراجعة هذه الحلول وتقييمها مما يسهم في تحسين الميزة التنافسية. | | | | | |
| ٣٠ | بما أن استخدام أنظمة التكاليف ليس حكراً لشركة معينة، فأنه لا يمكن استخدام هذه الأنظمة كميزة تنافسية. | | | | | |
| ٣١ | كلما زادت دقة نظام التكاليف المستخدم في الشركة، فان قدرة الشركة على تحديد موقعها التنافسي في السوق سوف يزداد. | | | | | |
| ٣٢ | المعلومات المحاسبية تفيد اكثر وتكون ملائمة أكثر إذا تم الحصول عليها من نظام تكاليف له القدرة على إعطاء تفاصيل بشكل أكبر. | | | | | |
| ٣٣ | استخدام نظام تكاليف جيد يؤدي إلى تحسين الميزة التنافسية وبالتالي يؤدي إلى تحسين الأرباح في الشركة. | | | | | |
| ٣٤ | استخدام نظام تكاليف دقيق وجيد يساعد الشركة في السيطرة على التكاليف غير المباشرة وبالتالي فانه يساعد الشركة على تحسين موقعها التنافسي. | | | | | |
| ٣٥ | عادةً ما تقوم شركتك بالأخذ بعين الإعتبار مبدأ المنفعة – التكلفة عند إختيار نظام التكاليف الخاص بها. | | | | | |

*سؤال: كيف ترى العلاقة بين نظم التكاليف والميزة التنافسية؟*

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*انتهت الأسئلة و شكرا لحسن تعاونكم،،،،،،،*


**لمزيد من الاستفسار:**

**احمد إبراهيم محمد أبو دولة**

**جامعة اليرموك**

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# Appendix (B)

## Sample of the Study

| [illegible] | [illegible] |
|---|---|
| 1 | Jordan Petroleum Refinery |
| 2 | The Public Mining |
| 3 | Arab Aluminium Industry/Aral |
| 4 | The Arab Chemical Detergents Industry |
| 5 | National Steel Industry |
| 6 | Dar Al-Dawa Development & Investment |
| 7 | The Jordan Worsted Mills |
| 8 | Jordan Ceramic Industries |
| 9 | Jordan Paper & Cardboard Factories |
| 10 | Jordan Phosphate Mines |
| 11 | The Jordan Pipes Manufacturing |
| 12 | Arab Center For Pharm . & Chemicals |
| 13 | Jordan Chemical Industries |
| 14 | Universal Chemical Industries |
| 15 | Woolen Industries |
| 16 | Jordan Wood Industries (JWICO) |
| 17 | Jordan Cement Factories |
| 18 | Arab Potash |
| 19 | International Tobacco & Cigarettes |
| 20 | Universal Modern Industries |
| 21 | National Chlorine Industries |
| 22 | Jordan Industries Resources |
| 23 | Jordan New Cable |
| 24 | El-Zay Ready Wear Manufacturing |
| 25 | Ready Mix Concrete And Construction Supplies |
| 26 | Jordan Steel |
| 27 | The Union Tobacco & Cigarette Industries |
| 28 | Rum Aladdin Industries |
| 29 | International Ceramic Industries |
| 30 | Pearl Sanitary Paper Converting |

## List Of The Questionnaire Examiners And Language Reviewer

| | | | | |
|---|---|---|---|---|
| 1 | Munther Momani | Associate Professor | Accounting | Yarmouk University |
| 2 | Jamal Al-Bdour | Assistant Professor | Accounting | Yarmouk University |
| 3 | Abeer Al-Khoury | Assistant Professor | Accounting | Yarmouk University |
| 4 | Nedal Al-Arbed | Assistant Professor | Accounting | Philadelphia Private University |
| 5 | Ashraf Krajeh | Assistant Professor | Accounting | Philadelphia Private University |
| 6 | Jamal Abu-douleh | Associate Professor | Business Administration | Yarmouk University |
| 7 | Sameer Kana'n | - | English Translator | - |

بسم الله الرحمن الرحيم

# أثر نظم التكاليف على الميزة التنافسية للشركات الصناعية الأردنية: دراسة ميدانية


(ملخص الدراسة)

تفحص هذه الدراسة أثر نظم التكاليف على الميزة التنافسية للشركات الصناعية الأردنية، من وجهة نظر المدير أو المدير المالي.لتحقيق أهداف الدراسة تم تطوير استبانه ومن ثم تم توزيعها إلى عينة الدراسة المكونه من ٣٠ شركة تم اختيارها من الشركات الصناعية الأردنية المدرجة في سوق عمان المالي (السوق الأول)، تستخدم هذه الدراسة الأسلوب الوصفي التحليلي مثل: تحليل النسبة، تحليل التكرار، الوسط، الانحراف المعياري، ومن ثم تم استخدام *(one sample t-test)* لكي يتم تحديد فيما إذا كان هنالك أي تأثير من نظم التكاليف على الميزة التنافسية أو لا، وانعكاساته على ربحية الشركة. تفحص هذه الدراسة أيضا فيما إذا كان نظام التكاليف قادر على تزويد المعلومات الملائمة لمستخدميها الداخليين والخارجيين وبحسب حاجتهم إليها. أظهرت النتائج أن هنالك علاقة ايجابية بين نظم التكاليف و الميزة التنافسية للشركة. ومن ناحية أخرى، أثبتت الدراسة أن نظام التكاليف له القدرة على تزويد مستخدمي القوائم المالية الداخليين والخارجيين بمعلومات دقيقة وملائمة.



**كلمات مفتاحيه:** نظم التكاليف، المنافسة، الميزة التنافسية، السعر، النوعية.